Price
Rs 125

February 2007

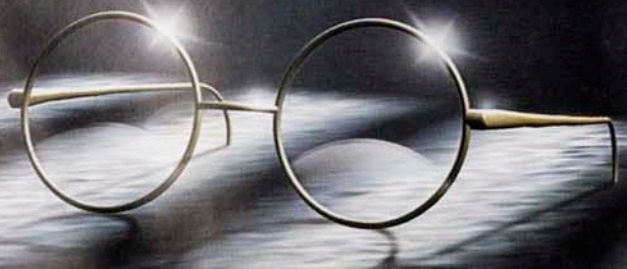
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YOUR TECHNOLOGY NAVIGATOR

THE NEW FREEDOM STRUGGLE

P2P and DRM – The Fight For Your Privacy and Rights



Jasubhai DIGITAL MEDIA

Trapped In Paradise

I TOOK A TRIP to the US last month and came across the subsidy trap on cell phones, which has led to a reduced choice of handsets amongst American consumers, and an increase in the clout telecom service providers have.

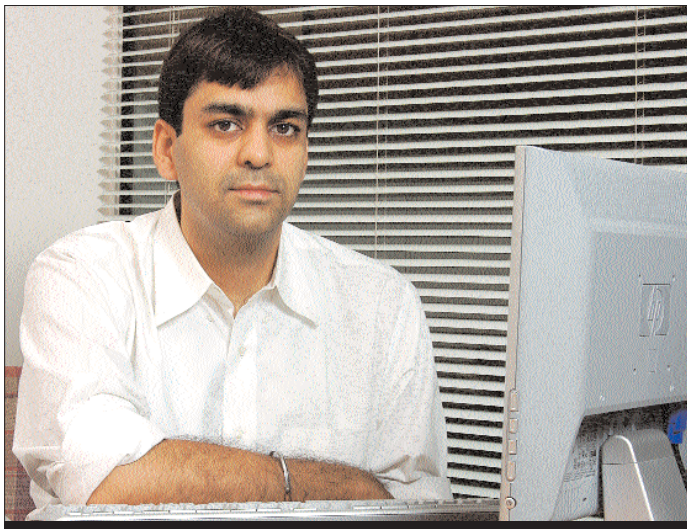
Democracy, and the right to choose, is purported to be the birthright of Americans. Strangely though, this is not the case when it comes to choosing a mobile phone. Consumers in US are still largely dependent on the mobile telecom service provider for the cell phone models they use. They might have the liberty to pick from a hundred kinds of breads, chocolates and cheese, but when it comes to cell phones, they are pretty much locked-in and restricted. This is because of two reasons: CDMA is the prevalent technology used there, and secondly, mobile phone manufacturers initially chose to tie up with telecom service providers to sell their phones instead of doing it all themselves.

Here's how it works: all major telecom service providers in the US subsidise the cost of the handsets (a discount of 50 to even 100 per cent), when bought along with a one or two year connection scheme. A hundred per cent saving? Who wouldn't want that, right? This means that almost 90 to 95 per cent of cell phones are sold through the telecom service provider rather than the mobile phone manufacturers themselves. Thus, if the service providers choose not to offer a particular phone model, then you'll have to shell out extra for your choice of model—buy it from a retail store, which are few and far between in the US.

Here in India, it's the same story with CDMA carriers, who offer discounts mainly for lower-end phones. However, at least we can buy our own choice of handsets from one of the innumerable retail stores, and get the provider to set it to our number.

Another implication of the US sales model is that when US subscribers switch providers, they can't use the same phone, because it is locked by the original service provider. The worst part is that they also have to take the pain of migrating all their contacts to the new phone.

Globally, half of all phones are sold by telecom carriers, while the other half are sold through retail stores. Retail sales account for 80 per cent of phones sold in Asia, 70 per cent in Europe, and a paltry 5 to 10 per cent for the US. It's no wonder that there's no variety of phone models being used in the US.



Deepak Ajwani Executive Editor

"When US subscribers switch providers, they can't use the same phone"

Nokia introduced 50 new models in the US market last year, and only few saw the light of day. Mobile manufacturers are now realising their folly of solely depending on the telecom service providers for their handset sales. Slowly but surely, manufacturers are selling directly to end-users via the Net and retail stores. It's going to take a long time before the stranglehold that providers have is broken, if ever...

Personally, I'm just glad I can keep my phone even if I switch providers, and most importantly, I chose my own phone!



editor@thinkdigit.com

digit
YOUR TECHNOLOGY NAVIGATOR

February 2007 • Volume 7 • Issue 2

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Each month, *Digit* walks through the technology maze to bring you the most relevant, most researched stories. If you have an opinion about anything published in *Digit*, or about technology in general, please write in to **editor@thinkdigit.com**



Product Testing

Want your product reviewed by *Digit*? Contact our Test Centre at **sanket_naik@jasubhai.com**



Software On DVD/CD

To submit and suggest software for inclusion in the *Digit* DVD or CD, contact us at **cdcontent@jasubhai.com**



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Disclaimer: For every *Digit* contest, there will be only one winner, unless specified otherwise. In the event of a dispute, the Editor's decision shall be final

Advertisers' Index

Client	Page
APC	Back Cover
Asus	49
BenQ	83
Busy	111
Canon	15
Cricket Today	129
Dell	12-13
Epson	41
Gigabyte	71
Google	47
Hitachi	39
KYE	35
LG	2,3,4
LIC	21
Marbonite	24-25
Maxell	85
Maxim	113
Moser Baer	Inside Back Cover
MSI	59
NEC	89
Net 4 India	95
Nikon	7
Nvidia	53
Ricoh	33
Stellar	79
The Week	109
Tirupati	93
Topgun	77
Toshiba	23
Viewsonic	31
Wiley	131

Products Reviewed This Month

HARDWARE

DVD Writers **72**
ASUS QuieTrack DRW-1612BL
ASUS DRW-1608P2
LG GSA-H12N
Lite-On LightScribe SHM-165H6S
Lite-On Super AllWrite LH-16A1P
Lite-On Super AllWrite LH-20A1P
Samsung Super-Writemaster SH-S182D
Sony AW-G170A
LG GCC-H21N
Lite-On SOHC-5232K
Sony CRX320EE
Samsung OctoEdge SH-M522C

Mono Laser Printers **100**
Brother HL-2040
Canon LBP-1210
Canon LBP-2900
HP LaserJet 1020
Lexmark E-120
Samsung ML-2010
Xerox 3117

Colour Laser Printers **115**
Canon LBP-5000
HP LaserJet 2600n
HP LaserJet 2605dn
Samsung CLP-300

Bazaar **54**
Hardware
Access Digital Photo Frame
Freecom Tough Drive XXS 6 GB portable drive
Gigabyte Wireless Presentation Kit
Lenovo 3000 Y series 500 Laptop
Mitashi MPF 1001 1 GB MP3 player
Tech-Com DSC-520 5.0 MP digital camera
Podera Launch USB 2.0 4-Port Hub

Software **58**
3ds Max 9

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Enter



16 Technology is "evolving consciousness" for the artistically-inclined Suchitra Krishnamoorthi

16 Solutions to the blue-laser wars?

16 HP invents, and in a big way

22 What's the Joost thing all about?

Digital Passion

Cover Feature: The New Fight For Freedom

29 Power 2 The People

Will peer-to-peer sharing die? A look at the world's favourite activity and why the future might have you seeing more of it



36 Read Me My Rights



Imagine being charged to copy your music collection from your old hard disk to the new one. What is Digital Rights Management and who does it really protect?

Take a Crack

50 Change The Default Drive Tools In XP

Windows comes with its own defragmenter and other disk utilities. Can you make XP default to third-party programs with similar functions?

Tomorrow

44 Along Equal Lines

Before we see human-like intelligence in robots, it's more likely that we'll see human-like appearance. The robots of the future will even have rights of their own! Where does all this lead?

Contents Magazine

Digital Tools

Enhance

51 Under The Radar

There are a lot of things out there that can make your computing experience just that much easier—a big help, all things considered. Agent 001 went on a hunt for this stuff, and came up smiling

Agent 001

86 Surfing The Airwaves

Now that CAS and DTH has begun to invade our lives, there's a good chance your old TV-Tuner might not have the right connectors. Here's the Agent's handy guide to a new one





Test Centre

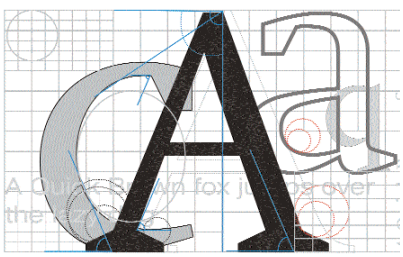
72 BurNer Kings

You're nowhere without a DVD drive these days. We've rounded up the best and worst out there—both Combo drives (four of them) and eight DVD-Writers. There's now no reason not to replace your crumbling CD-Writer

Know More About...

88 Fonts

Did you know there's a whole science behind fonts and how they render on your screen? Find out about what makes a font work

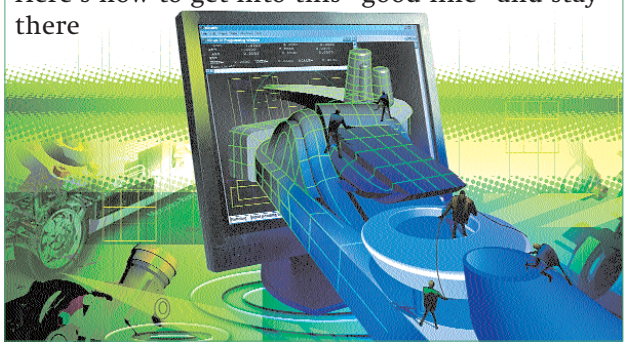


Digital Business

Tech Careers

91 Emerging Dimensions

It's one of those "good lines to get into," but there's very little known about it. The market for CAD/CAM professionals is as broad as it gets, and the opportunity is there for the taking. Here's how to get into this "good line" and stay there



Test Centre

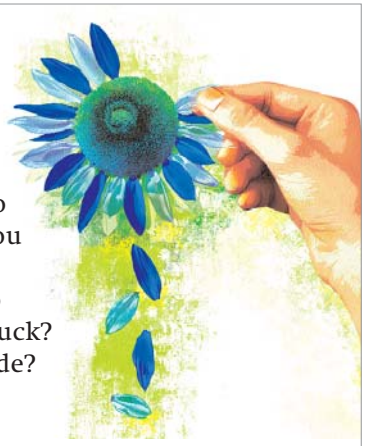
100 Cutting-Edge Lasers

Every office needs a laser printer. We've tested some of the best and most elaborate from the market—which one is the best for you?

Main Story

96 The Vista Dilemma

Enterprises had it in November, and it'll be available to you by the time you see this. But is it worth it? What do you get for your buck? Should you upgrade? All your questions answered!



Smart Business

114 Mayhem Management

It's usually what you'll find in an enterprise, but even your office should experience a sharp decline in chaos by moving to a domain setup—here's why



February 2007

Digital Leisure

Main Story

117 A Few Of Our Favourite Things

Who doesn't love great product design? We've hunted down some of the smartest, coolest, and most droolworthy gadgets of all time!



126 Game On

Reviewed this month: Gears Of War, Splinter Cell: Double Agent (PC and PS2—they're actually different games!), and Rainbow Six: Vegas. Verdict: we love taking cover!



Escape



133 Clive Sinclair rang in the ZX Spectrum—the first gaming "rig" for many of us!

132 The Bay of Pirate fame has been planning to move to another country—*their own!*

REGULARS

Stat Attack 18
The Digital World 18
Beat That 19
Gender Benders 20
Buzzword Of The Month 20
Droolmaal....42
30 Days With 48
Bazaar 54
Tips & Tricks....63
Q&A 80
Old Way, Tech Way 90
Digit Diary....136
Blogwatch 136
Inbox....144
Tech Quiz 146

DIGITAL PASSION

Splinter Cell: Double Agent



Veteran agent Sam Fisher is back. But he's never faced an enemy like this before. To stop a devastating terrorist attack, he must infiltrate a vicious terrorist group, and destroy it from within

Microsoft SQL Server 2005 Express Edition



A powerful and reliable data management product that delivers rich features, data protection, and performance for embedded application clients, light Web applications, and local data stores

Toad



A powerful, low-overhead tool that makes database and application development faster and easier while simplifying day-to-day administration tasks

GAME
- 1848
- Starseige: Tibes

LINUX
- Dolphin File Manager 0.8.1
- Flock 0.7.9.1



- K3b
- KAlarm
- Kid3 0.8.1
- KThinkBat 0.2.4
- Lightbird 0.5
- X-CD-Roast 0.98alpha15

DEV TOOLS
- Advanced Installer 4.6.3
- JCreator Pro
- Java Web Services Developer Pack 2.0
- Adobe Captivate 2
- Spices.Net
- eyebol for Delphi



DIGITAL TOOLS

Nero 7 Premium Reloaded



The ultimate PC and home entertainment solution is now Windows Vista Ready, and has everything you need to manage your digital multimedia lifestyle

Norton Ghost 10.0



Reliable, efficient, and versatile, Norton Ghost optimises backup space, works with a wide range of media devices, and can bring back your entire system in a few short steps

Adobe Photoshop CS3 Beta

CS3 delivers new tools and enhancements that enable you to work more productively, edit with unrivalled power, and composite with ease and control

MULTIMEDIA
- Project Looking Glass
- ACDSee Photo Editor
- Adobe Photoshop CS3 beta
- iTunes 7.0.2
- SUPER v2007 Build 21
- Windows Media Encoder 9 Series
- Beyond TV 4



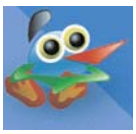
- MagicScore Maestro v4.130
- SILKYPIX Developer Studio 3.0

INTERNET
- a-squared Anti-Malware 2.1
- Internet History Eraser 6.0
- Colasoft MAC Scanner 1.1
- Deepnet Explorer v1.5.3 Beta 2
- Download Accelerator Plus 8.1
- Raketu 1.017
- Shareaza 2.2.4.0 beta
- Youtube Video Downloader 1.1.0
- Weather 1
- Web Gallary Wizard Pro

SYSTEM
- VMware Player 1.0.3
- Autopatcher
- Microsoft Office Compatibility Pack
- Adobe Acrobat 8 Professional
- WinTasks 5.0 Professional
- WordToys v2.0.0

DIGITAL BUSINESS

LyX 1.4.3



LyX is for people that write and want their writing to look great, right out of the box. No more endless tinkering with formatting details, "finger-painting" font attributes, or messing around with page boundaries

Aloaha PDF Crypter 2.2.5



Aloaha PDF Crypter is the perfect choice to prohibit re-distribution of confidential documents or selling of documents or e-books online

EzPhone Recorder 1.1



EzPhone Recorder is full-featured telephone recording software that runs on Windows. It uses your voice modem to record both incoming and outgoing telephone calls

Portable Scribus



A portable version of an open source page maker called Scribus, which is much like Adobe Pagemaker. It can help create professional-looking documents, newsletters, magazines, and more

PRODUCTIVITY TOOLS
- Achieve Planner 1.4.1.1
- AMF Daily Planner & PIM 9.3
- Prop Web 5.0
- SANmelody
- WinOrganizer 3.3

MOBILE APPS
- Hier (Free Mobile MSN Messenger)
- MyPhoneExplorer 1.5.7
- Plato Video To PSP Converter 3.35
- USB-ToolBox 2



- Foxit Reader
- NetSupport Manager for Pocket PC Version 10.00
- Nokia Video Converter 1.0
- XYplorer



- PowerDay Pro



DIGITAL LEISURE

Jewels of Cleopatra



As archaeologist Dr Felicity Turnstone, you must match and twist your your way through the hidden tombs and underground catacombs of the Nile Valley

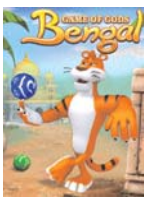
Pizza Frenzy



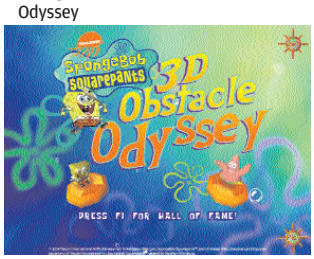
Help the Stromboli family pass the pizzas in this tasty treat! Match incoming orders with the right kitchen to deliver fresh pizzas on time to happy customers

Bengal: Game of Gods

Meg just bought a flower shop and it's up to you to get things growing! Keep the flowers blooming and customers happy to earn money for upgrades and new locations



SMALL GAMES
- Secret Maryo Chronicles v0.99.2
- Death From Above
- SpongeBob SquarePants Obstacle Odyssey



- Tank Wars

MOVIES



MOVIES of the MONTH

The Dentist



DIGITAL PASSION

AEdiX Suite 3.0.5 beta



An advanced code editor with multiple file support, with syntax highlighting for 13 languages

Toad Data Modeler



This is a database design tool using which you can create complex entity-relationship diagrams (ERD) for more than 20 databases. You can visually draw new diagrams and generate SQL scripts based on the ER diagrams automatically

Celestia 1.4.1



A free real-time space simulation that lets you experience the universe in three dimensions! Travel throughout the solar system, to any of over 100,000 stars, and even beyond the galaxy

Vexira MailArmor



This anti-virus for Linux is a complete virus defence system designed for easy and dependable virus protection

DEVELOPER TOOLS

- Absolute Database
- Advanced Effect Maker 2.0
- BigSpeed Voice Chat SDK 1.0
- Google Web Toolkit 1.3.1
- MDB_Repair
- No-IP DUC (A Dynamic DNS Update Client)
- WinSCP

LINUX

- EasyTag
- Hullform
- Liquid war 5.6.3
- Mailfilter 0.8.0
- XChat 2.8.0
- WinRAR 3.62
- rsync 2.5.0



DIGITAL TOOLS

TwistedBrush 11.7



TwistedBrush has one of the most versatile and powerful brush engines in existence, yet it was designed from day one to be easy to use

Software Virtualization Solution 2 SP1



This software allows you to instantly activate, deactivate, or reset applications, and to completely avoid conflicts between applications without altering the base Windows installation

InkSaver 2.0



InkSaver 2.0 allows you to control the amount of ink used by your inkjet printer, making your cartridges last longer

MULTIMEDIA

- Ultra Analog VA-1
- Wizardbrush 6.6.1.8
- Crystal XP
- MusicMatch Jukebox 10.00.4015b
- Super Video Converter
- Zortam MP3 Media Studio 6.50
- ImTOO Ripper Pack Platinum v4.0
- Saint Paint Studio 12.2

INTERNET

- Feed Editor 4.1
- Flock 0.7.9.1
- AVG Anti-Spyware 7.5
- Connection Keeper7
- FlashGet 1.8.0.1002
- Google Web Accelerator
- NET Traffic Meter 2.0.1831
- Cute FTP Home 8.0.3
- WebScout 2.12

SYSTEM

- SpyEraser 1.0



- Spyware Terminator 1.7.0.899
- Complex Evolution 3.2.7
- Advanced WindowsCare Personal
- Hot CPU testerPro
- IP Messenger for Win ver2.06
- NetSupport Manager v10.00
- Passware Kit Enterprise 7.11

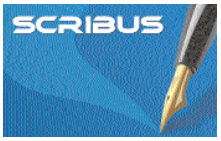
ESSENTIALS

- Avast! Home Edition 4.7
- Digit Software Archive 2006 Beta
- Foxit Reader 2.0 Build 0930
- Irfan View 3.99
- K-Lite Mega Codec Pack 1.63
- Opera 9.10
- Spybot Search and Destroy 1.4
- VLC Media Player 0.8.6
- Winamp 5.32
- WinRAR 3.62
- ZoneAlarm 6.5.737



DIGITAL BUSINESS

Scribus 1.3.3.6



A professional page layout software for Windows Desktops with "press-ready" output, Scribus brings in new approaches to page layout

WordPerfect MAIL



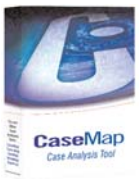
Lightning-fast searches—find information anywhere, including folders, the calendar and contact list, even attachments! WordPerfect MAIL also helps keep your e-mail clean and organised, with innovative filing capabilities and spam protection

True BoxShot 1.5



An easy tool to create quality box shots of your software box cover

CaseMap 6



An award-winning case analysis tool that makes it easy to organise and explore the facts, the cast of characters, and the issues in any case

PRODUCTIVITY TOOLS

- VoiceGuide for TAPI 5.2.50495
- LaTeX Editor 0.46 Beta
- Volutive 1.2.5
- CaseMap 6
- iMagic Inventory Software

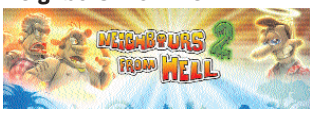
MOBILE APPS

- Bluetooth Messenger
- Mobile Cobra Strike
- Mobile Fighter 1.1.0
- Mobile Soccer
- Mobility Email
- Opera 9.10 USB
- PixaMSN v0.6
- PopMan 1.2.2
- Blackberry Email Relay 1.5.1

DIGITAL LEISURE

SMALL GAMES

Neighbors From Hell 2



The neighbour from hell wants to enjoy an undeserved holiday – reason enough for Woody and the camera team to sneak along onto the cruise liner to make the nasty neighbour's holiday living hell

Heavy Weapon



Communism is spreading its fingers across the globe, and only you can stop it! Are you ready to unleash adrenaline-soaked side-scrolling shoot-em-up arcade action?

Hostile Skies



You're a fighter ace—complete a series of dangerous missions, then challenge the evil "Red Baron" for supremacy of the skies!

- Cable Capers 2
- Canyon Glider
- ONAGUNTA
- UFO Joe



- Arcade Lines
- Snowy: Lunch Rush

VIDEOS





By Demand

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Adobe Photoshop CS3 beta
Size: 337 MB

Nero 7 Premium Reloaded
Trial 315 MB



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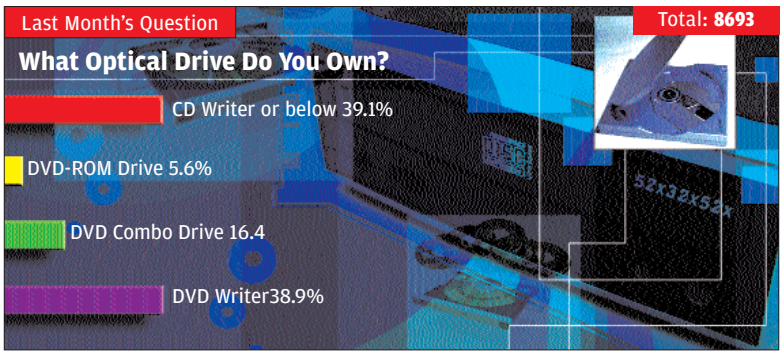
This Month's Question

What do you like best about Digit?

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☐ DVD ☐ Fast Track
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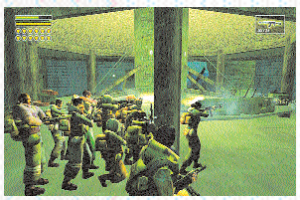
taste technology at **www.thinkdigit.com**

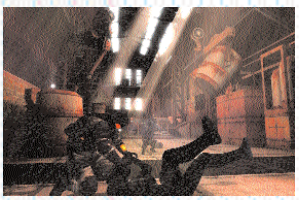
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Match the forum member to the game that shattered all his expectations and you stand to win an all-expenses-paid dinner—in your own home!

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Games That Shattered All Our Expectations



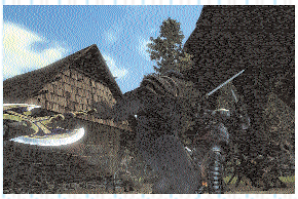




karan.painkiller	Freedom Fighters
Nemesis	Half-Life 2
ctrl_alt_del	Gothic 2
aravind_n20	The Suffering
enoonmai	CounterStrike
Hells_Fury	Pirates of the Caribbean
mayur_digitized	Serious Sam
allwyndlima	PoP: The Sands of Time
T159	SWAT 4

Find the answers at:
http://www.thinkdigit.com/forum/showthread.php?t=7110







PCI-Express 2.0 Released

The PCI SIG, overseer of the PCI Express standard, has finalised version 2.0 of the base specification. Each x1 lane of PCI-E 1.1 offers 250 MBps, which puts a x16 link at 4 GBps. The PCIe 2.0 specification will double the per-lane speed to 500 MBps, boosting a x16 link to 8 GBps.

OSS Good For European Economy

Lawmakers should "correct" policies that favour the use of proprietary software, according to an EC report: open source software is worth 2 billion annually for the European economy. The code base of OSS in Europe is worth 131,000 freely-donated "person years" of developer time.

Enter



Suchitra Krishnamoorthi
Actress, Painter

Acting, singing, painting, and poetry—Suchitra Krishnamoorthi has done it all. She's a creative artist in the true sense. With her debut movie *Kabhi Haan Kabhi Naan*, more recently *My Wife's Murder*, and her music albums, she has always been in the limelight.

Technology to you is...
Evolving consciousness. One cannot be apart from it.

What gadgets do you use?
A desktop PC and also a laptop. A Sanyo digital camcorder, a portable DVD player, organiser, an iPod which I cannot live without, and the iFusion which I attach to my iPod so I can listen to my music loud.

Your dream gadget?
An All-In-One where everything—computer, organiser, music player, video player, phone, camera, remote control—is fused into a single gadget.

What do you do mostly do online?
I check my Web site, **www.suchitra.com**, where I sell paintings; I check my e-mail, listen to music online, and I blog at **intentblog.com**.

An instance where technology has come to your rescue?
Technology has come to my rescue many a time, and I don't recall when it didn't!

STOP-GAP ATTEMPT?

LG And Warner Step In

The blue-laser format war—between HD-DVD and Blu-ray—is showing no signs of letting up. No-one's happy, definitely not the HD consumer: very few titles are still available on either of the high-definition optical media, and consumers are putting off purchase of players of either flavour. The media, like the players, remain expensive. In fact, some are even waiting for HVD—Holographic Versatile Disc—entirely avoiding the upgrade to blue-laser. And some are contemplating that Flash, with its ever-plunging prices, could kill of blue-laser media! In short, the entire HD-DVD and Blu-ray thing seems to have gone awry, and we are far from the rosy picture we once had.

If the alliances can't seem to reach a consensus, it remains for someone else to make an effort at delivering content.

Warner Bros unveiled, at the 2007 CES, an optical disc format that can be played in both HD-DVD and Blu-ray Disc players. The disc has been dubbed "Total HD," and it can't get simpler in concept: a dual-layer disc, with an HD-DVD layer on top of a Blu-ray layer.

In what is indicative of the fact that the format war is still very much on, Warner Bros chief Barry Meyer told *The New York Times* that there's no clear winner in the battle between Blu-ray and HD DVD; he went on to confidently speculate that a winner isn't likely to emerge for some time. Which is just what it seems like to us.

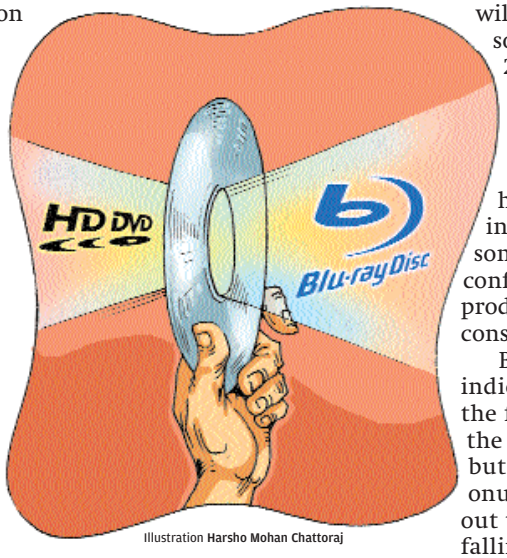


Illustration **Harsho Mohan Chattoraj**

Total HD will appeal to content retailers, he added, who will need to stock one disc instead of two. However, with no pricing details having been given out, one cannot say that Total HD is *the* answer.

Many of the other big labels—with Paramount as a notable exception, supporting both formats—are siding with one format or the other, still hoping for a clear winner to emerge from the format war.

If that was for the media, here's another solution—from LG—in terms of the hardware: announced at the 2007 CES was the world's first dual-format Blu-ray/HD-DVD player. It will be launched sometime in "early 2007." "Dual-format" simply means the player will be able to play both types of discs.

LG, like Warner, is hopeful their innovation will solve, to some measure, the confusion—for content producers as well as consumers.

Both developments are indicative of how ludicrous the format war has gotten: the technology is there, but few can use it! If the onus of getting content out to the consumer is falling upon someone other than the disc alliances, you can figure how stubborn each camp is. We must ask: will good sense prevail in the end?

HP INVENTS—AGAIN

Nanowires For Interconnects

As you're probably aware, fending off Moore's Law—whether by paradigm shift or novel nanotechnological technique—is what exciting

Security Watch

Update Your JRE And Adobe Reader Now!

A vulnerability has been reported in the Sun Java Runtime Environment (JRE). It is caused due to an error when processing GIF images; it can be exploited via specially-crafted GIF images. Successful exploitation can mean the taking over of your computer by Those With Malicious Intent (TWMI). The vulnerability is reported in JDK with JRE 5.0 Update 9 and prior; SDK with JRE 1.4.2_12 and prior; and SDK and JRE 1.3.1_18 and prior. Security firm Secunia rates the vulnerability "Highly Critical." In all probability, you downloaded Java for the JRE at some point of time. The JRE allows you to run Java applications off the Net. To see what version of the JRE you have, go to the Java applet in the Control Panel, and in the General tab, click About.

Strictly speaking, there's no need to check what version you have—simply upgrade to the latest version. Head to **http://java.sun.com/j2se/1.4.2/download.html** to download the J2SE JRE, version 1.4.2_13.

A vulnerability has also been reported in Adobe Reader. It is caused due to an unspecified error when processing PDF files; it can be exploited via a specially-crafted PDF file. Again, Successful exploitation can mean the taking over of your computer by TWMI.

The vulnerability is reported in version 7.0.8 and prior, though other versions may be affected, too. Fixing this is a simple matter of upgrading to the latest version—8.0—which you'd want to do anyway, even without the vulnerability. At www.adobe.com, click "Get Adobe Reader."

news in chip design has been all about in recent years. Reversible computing and DNA computing and other "computings" are being heavily researched, as are solutions such as using nanotubes in transistors.

HP has once again validated its claim to its own tagline, "Invent," with research that proves it is possible to do away with copper interconnects in chips, by using grids of nanowires. See figure below: it shows the structure of HP's proposed "crossbar" network of nanowires. Two layers of crossbars with orientations perpendicular to each other form a sandwich outside a layer of silicon transistors. The transistors and other functional blocks in the chip communicate through "dynamic" (meaning non-hardwired) connections created in the crossbars.

Think of a nanowire as just a wire on the nanoscale—specifically, with a width in the range of tens of nanometres. Because of their extreme thinness, they are often referred to as one-dimensional structures.

The new design will achieve three objectives: reducing size, increasing performance, and reducing power consumption.

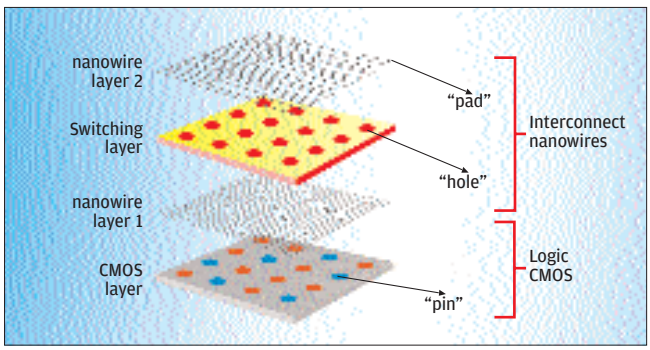
It should be obvious that chips will shrink drastically once the interconnects are gotten rid of. The beauty of the crossbar method is that traditional transistors can still be used.

The company has thus far created a simulation of a field-programmable gate array (FPGA) with a crossbar grid, and hopes to have a prototype by the end of the year. (An FPGA is a type of programmable chip; the simulation essentially maps the intended circuit to the nanowire structure.) The timeframe for commercial chips using the crossbar grid structure is 2010—HP says it is possible for the concept to be incorporated into chips of other types, though the simulation only demonstrated it for FPGAs.

With the FPGA as an example, the functional blocks are hardwired to each other through interconnects, so an increase in the number of functional blocks leads to a "geometric" increase in the number of data pathways. Now, the pathways themselves could consume 80 per cent of available chip area. The crossbar system would result in an "intelligent communications system" that would only connect functional blocks when they need to be connected.

In other chips, with a dynamic network performing the role of interconnects, some transistor areas could be turned off when not in use, thus saving on power.

According to HP's estimates, an FPGA made with 45-nm transistors and a grid of nanowires 4.5 nanometres across would



HOT

The iPhone



It's so cool! There's no keypad, a multiple-touch screen, up to 8 GB of space, it reorients the screen depending the way you're holding it, has Wi-fi and did we mention how cool it looks? It also makes phone calls.

NOT

The iPhone



You can't change the battery, there's no 3G, it won't run just *any* application like your phones do today, the screen isn't purely scratch-resistant, it's grossly overpriced and is available only with Cingular today. We'll wait for a cheaper me-too, thank you.

One Silly Question

"What Valentine gift would you give your computer?"



"A new game"
Abdullah Manihar



"An Anti-Virus"
Ambarish Patil



"e-flowers"
Priyanka Babu



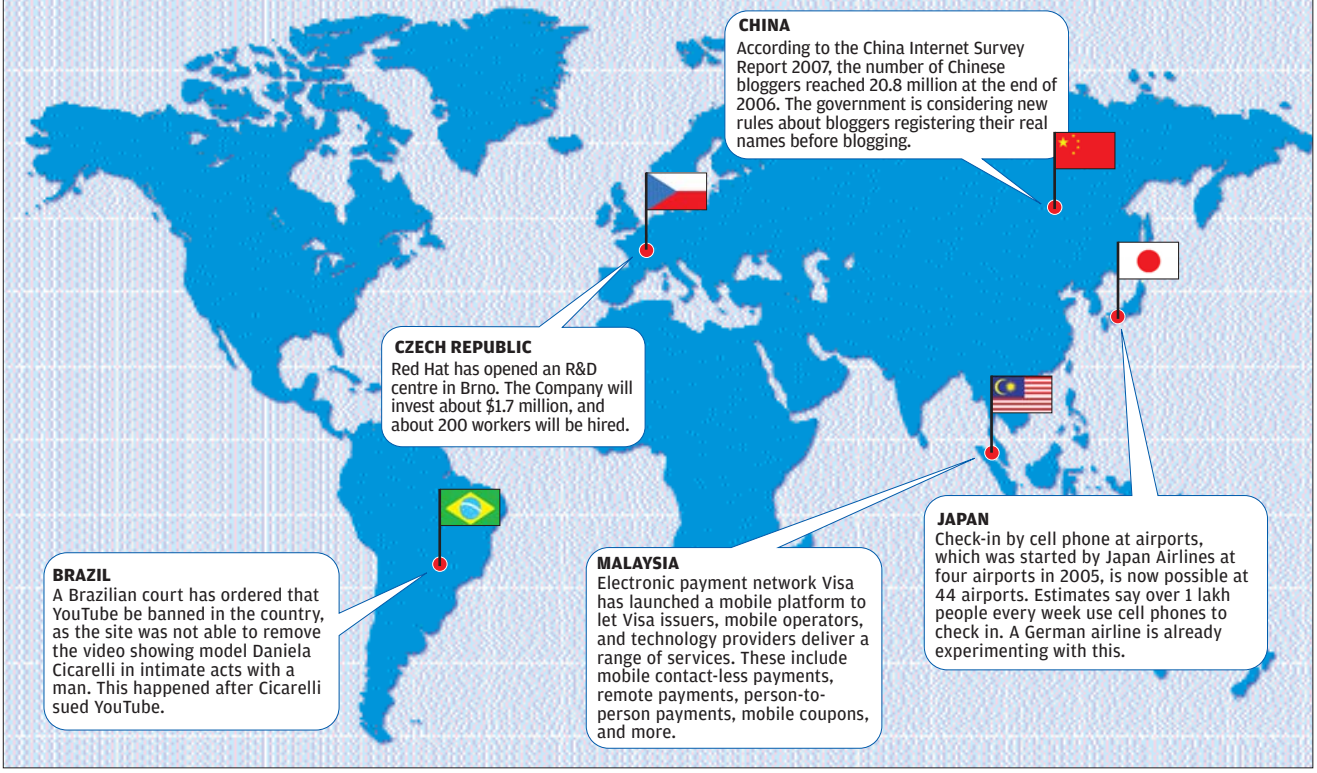
"UPS for load shedding"
Pratik Desai



"A good mouse"
Sarita Balakrishnan

The Digital World

A Round-up Of Technology News From Across The Globe



only be 4 per cent as large as a regular FPGA manufactured using the 45-nm process.

SERIOUSER AND SERIOUSER

MySpace Blamed—Again

It's almost a given that a young American will have a profile on the social networking site MySpace, which is already venturing into providing local versions in countries such as Japan and France. This, while being under fire for (allegedly) endangering teenagers' safety: MySpace makes it easy for teenagers to share a lot of personal information on the Internet. One needs to be at least 14 to be a MySpace member, but (a) there's nothing, obviously, to prevent younger kids from misrepresenting their age, and (b) 14 seems too young as it is.

The MySpace/parents/kids/predators issue is big, and probably poised to get bigger. Experts and analysts pointed out long ago that with such a large "kid base" of users, the site is a breeding ground for sexual predators.

It isn't an issue in India, thankfully, because (most, we presume) would-be predators aren't Internet-savvy; however, in other countries—notably the US—gory crimes have happened following kids' posting of too much information online.

Lawsuits were recently filed on behalf of four families, alleging that the site hadn't acted quickly enough to protect minors from adult predators. One 15 year-old girl was "lured to a meeting, drugged and assaulted in 2006 by an adult MySpace user," according to the prosecuting lawyers. Then, two sisters were "sexually assaulted and raped by two adult

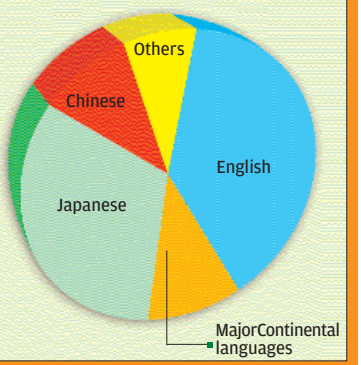
Stat Attack

It's all in the numbers

59% would not trust **Vista's** inbuilt **security** (Open vnunet.com poll)

41% of MySpace users are aged **35 to 54** (ComScore release, October 2006)

Blog posts by language, as tracked by Technorati Q3 2006

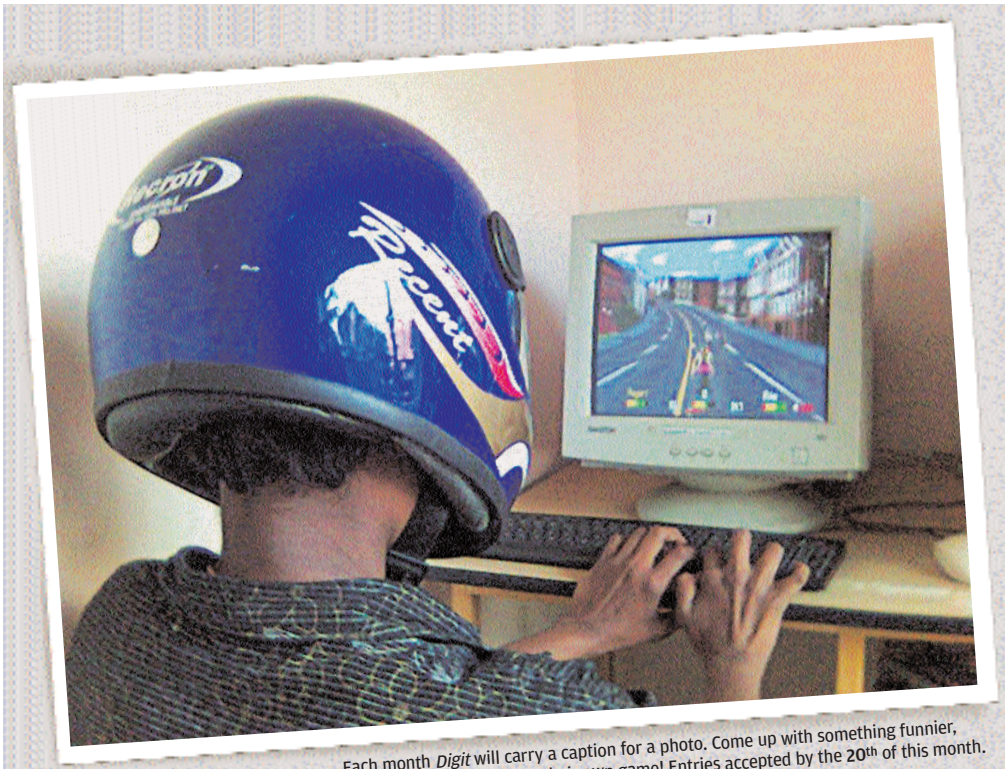


An all-white page uses about **74 watts** to display, while an all-black page uses only 59. If you do some maths, a black Google page could save 3,000 megawatt-hours a year—meaning **$300,000 (Rs 1.35 crore)**

51: Capacity in GB of Toshiba's latest triple-layer HD-DVD, just so it'll be "larger" than a dual-layer (50 GB) **Blu-ray** disc

2.9 million: Hits for "Joost" just five days after the name change from "The Venice Project"

Beat That!



Photograph Santhosh. S, Bangalore

Each month *Digit* will carry a caption for a photo. Come up with something funnier, and beat the *Digit* team at their own game! Entries accepted by the 20th of this month.

Digit Caption

"Crash Testing"

Last Month's Winner!

Ratish K P
Trimulghery, Secunderabad- 15
"Open Office"

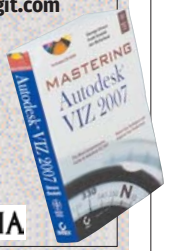


E-mail your caption with the subject "Beat That", and your postal address, to **beatthat@thinkdigit.com** and win

Mastering Autodesk

by George Omura, Scott Onstott & Jon McFarland

Published by WILEY-INDIA

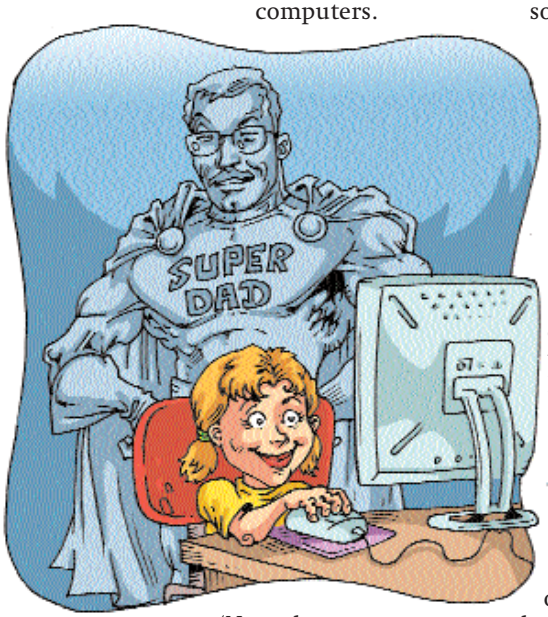


MySpace users" after being given alcohol. In addition, it has also been revealed that 56,000 MySpace users have fallen victim to a phishing attack that exposed their passwords, allowing Nasty Adults to access their accounts.

MySpace is now creating software that will let parents get some hold on the situation—it will allow them to see what their children are putting up on their profiles. The plan hinges upon the idea that kids give away too much about themselves in the profiles.

Parents will be asked install the software on a home computer and snoop on what their kids lists as his or her profile name, age, and location. It will also track updates to the profiles.

Will it work? Perhaps not. For one, the kids have to use the home computer, and there's nothing to prevent them creating profiles from public computers.



(Note that "public computer" means, in the US, something rather different from what it does here: they're all over the place, they all have fast connections, and they're in places like libraries.) Then, there remains the problem that members whose profiles are being monitored will be notified that the software is keeping tabs on them!

MySpace has said in a recent statement that it's an "industry leader in Internet safety." Even so, they went on to say that some of the responsibility for child protection doesn't rest with them. "Ultimately, Internet safety is a shared responsibility. We encourage everyone to apply common-sense offline safety lessons in their online experiences and engage in open family dialogue about smart Web practices." More rhetoric: in another statement, the site's chief security officer declared, "one of MySpace's goals is to empower parents to engage in conversation with their teens about Internet safety."

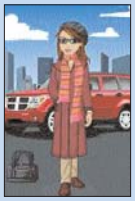
Because of the 14-as-minimum-age stipulation, 33 US state attorneys are interested in forcing the minimum to be changed to 16. The attorneys also want MySpace to cross-check users' entered information with government databases to verify age.

Should the Net give control to those as young as 14—and even younger? What exactly can parents do? Does the onus of protection rest with the site, the state, with parents, or with the kids themselves? How about making MySpace a kids-only site? No clear answers are sounding out.

As regards the software under development, North Carolina Attorney General Roy Cooper, said it "notifies the parent too late. At best it's after the child has offered his age. At worst, it's when he's already left to meet a child predator."

GENDER BENDERS — **Suchitra Shetty Vs. Ajeya Row**

This time we thought we'd just sit back and let Suchitra and Ajeya create avatars. We chose Yahoo!—http://avatar.yahoo.com—since it allows a lot of customisation.





The first thing for Suchitra was the background rather than the avatar, and that was fixed at the outset. Browsing through numerous bags, she seemed half-happy with a small black leather bag, which she added to her avatar. And then, she changed her mind (they've just got to, you should know): she replaced it with a tiger-skin bag. Continuing with the accessories, Suchitra chose a long, striped scarf.

So what was the "Branded" tab? Simple—it was about actual brands, we informed her. Here she selected the Dodge Nitro with a black city background (flashy again). We knew that deep down, somewhere, she wasn't happy with the earlier background. Another change of mind followed, and she reverted to the leather bag (to go with the background).





When we told Ajeya about the exciting things he was being called upon to do, he warned us that he wasn't a designer, and that we shouldn't hope for anything good-looking. He went on to try and figure what each button on the default page was for, and it was clear he was creating an avatar for the first time. (Actually, not too many of us have bothered, either.) We let him do the hard work—Ajeya read everything on the page, and clicking a few images, he figured how the default avatar could be changed. (Suchitra gets the points here.

THE US WILL RETAIN CONTROL

The ITU's Being Deferential

The Internet Corporation for Assigned Names and Numbers (ICANN) is a US non-profit company that manages the top-level domain name addressing system. ICANN reports to the US Commerce Department, which has extended ICANN's control for at least three more years.

Opposition to this US control of the Internet comes from Brazil, Iran, Cuba, and a number of other poor or developing countries. There have been calls for an internationally-accountable body to take over the role of overseeing the Internet, and the International Telecommunications Union (ITU), a UN agency, is one of the few such bodies.

A "solution" is hardly in clear sight. Hamadoun Toure is the new head of the ITU , and he has said that he has no plans to take a bigger role in regulating and governing the Internet. The ITU stepping in *could* mean less US control. In a Reuters report, Toure said, "We must avoid setting up a superstructure which would be very controversial and very difficult to put into effect." The countries mentioned are likely not too happy with this pronouncement: a "superstructure" to oversee the Internet could be exactly what they're pitching for.

Toure said the ITU would instead focus on tackling cyber-security, and in narrowing the digital divide between rich and poor countries. Amongst Toure's other priorities are standards for broadband Internet access and for 3G mobile phone accessibility.

Analysts had foreseen that Internet control passing on to a body more global in nature would not happen any time soon, and Toure is just reinforcing that.

The world is divided in opinion—some countries such as Australia are perfectly fine with US control, but at the other end of the spectrum is Iran, which actually once expressed fears that the US could block Internet access in the country whenever it wanted to.

HD-DVD PROTECTION ALREADY CRACKED

The Pirate Bay's Victory Dance

Of course we knew it would happen. We did not know the how and the when, but HD-DVD has been cracked, and HD-DVD rips are available on P2P, courtesy—no surprises—The Pirate Bay.

For those not in the know, The Pirate Bay is one of the best-known BitTorrent trackers. It has just enhanced its celebrity status by announcing the arrival of HD-DVD torrents. In addition, the Bay has serious political support in Sweden, and it has been harbouring plans of making a country for itself on a UK island.

"Yesterday the user Lyzz became historical by posting the first HD-DVD movie on our fine tracker," a recent blog post states. "It was the action sci-fi movie *The Chronicles of Riddick*, and today *Batman Begins* came along. They are about 20 GB each, so we recommend some fast broadband (moving to Sweden should take care of that) and a superfast computer to take care of the 1080p video."

There's some confusion about which the first movie was—some sources report that it was the sci-fi movie *Serenity*, made available as a .EVO file. Whichever way, the cracked movie can be played by most DVD-playing software.

Blu-ray discs will no doubt be cracked soon enough, although we must mention that the protection system on that format is more robust than that on HD-DVD.

What can the big labels be thinking? Take a look at our cover story for insight on the issue.

Buzzword of the MONTH

Apple iPhone

The much-anticipated Apple version of the mobile phone—the Apple iPhone— was announced at Macworld 2007. It is a next-gen multimedia phone running on a skimmed OS X; think of it as a widescreen iPod with Wi-Fi and Bluetooth, multi-touch input technology, and all the features of a smartphone. "Multi-touch input" means the user can navigate via finger gestures over the display. The camera on the phone is 2 MP. Jobs said the phone is an "intelligent Internet communicator." Coolness indicator: a proximity sensor deactivates the screen when the phone is held next to the ear.

The iPhone syncs with iTunes and auto-syncs with a PC or Mac. It will hit US shelves in June, and will be available in Asia next year. Tech analysts are wondering, though, why the thing isn't 3G-enabled, why it's not white, and about incompatibility with third-party applications.

Blu-ray, Babes, And A Bumbling Bot

Joost

What is it?
Joost is the new name for "The Venice Project." It aims at bringing in a new distribution method of watching TV content via the Internet.

Who are behind Joost?
It is being developed by Niklas Zennström and Janus Friis, the duo behind KaZaA and Skype.

What does one need to view Joost content?
Any Windows XP computer with good Internet connectivity—specifically, ability to download at least 220 MB per hour of viewing, which translates to a 500 Kbps pipe.

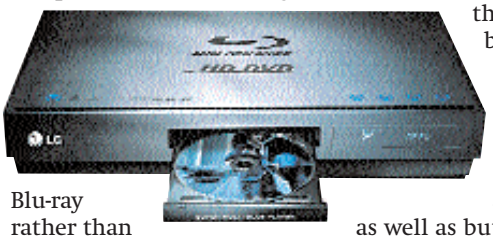
What makes Joost different?
Joost allows one to chat with others watching the same show. It is free of subscription schemes, allowing one to view all the channels Joost hosts, regardless of what country one is in. Joost is not YouTube, where one watches individual video clips; it's more like TV, with a continuous stream of video and the ability to switch channels. It works on P2P technology, so more computers on the network only translates to more bandwidth to play with.

Where is it headed?
Joost is roping in networks and producers from the world over to provide content. Advertising revenue is also being considered to keep the channels free.

How can one access Joost right now?
Joost is in beta as of now, and one needs to be a beta tester to access it. Signing up (at **www.joost.com**) just allows you to be considered as a prospective tester. However, like in Gmail, an invite from another tester gets you instant access.

You can't sum up the 2007 Consumer Electronics Show (CES 2007) in one line, but still, Blu-ray was a winner, the booth babes were better than last year's (opinion based on ogling pictures on the Web), and featured was an amiable but ultimately silly bot whose major task is—don't hold your breath—projecting DVDs onto the wall.

CES 2007 might just have tipped the format scales on Blu-ray's side: it's been reported that apart from most major companies showing off players, those companies were also using

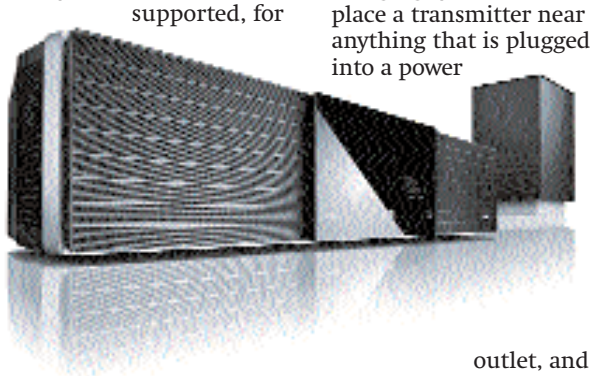


Blu-ray rather than HD-DVD as the example when talking about HD content. TDK showed off their 200 GB Blu-ray disc. (Eat that, HD-DVD?) However, the unanimous winner of CES 2007 for many people was LG's "Super Multi Blue Player," which we've already spoken about. Absolutely nothing spectacular about the design: it's as regular as it gets (pic above).

Talking about design, pictured alongside is Philips' HTS8100 SoundBar, a $999 1.1 virtual surround system. It has an inbuilt DVD player, which happens to feature 1080p upconversion. Only 5 inches thick, the HTS1800 looks good, as you can see; it features five integrated amplifiers in the horizontal "sound bar."

A company called Nikko, known for its remote-controlled cars, let their R2-D2 DVD Projector loose on the floor. It dutifully walked around on its wheeled legs, projecting 80-inch wide DVD images onto the wall with a contrast ratio of 500:1. The thing is remote-controlled, and features amongst other things an iPod dock, a memory card slot, and an FM transmitter to beam audio all around the house. But naturally, what people loved most was that it moves like R2-D2 from *Star Wars*, emanating random robotic sounds as it does so. Why it needs to walk around is not crystal-clear, but the bugger became the darling of many visitors, so here we are.

You might just have heard about Ford and Microsoft collaborating on an in-car entertainment and communication system, and that system has been unveiled—it's called "Sync." It lets drivers call hands-free and control audio via voice as well as buttons on the wheel. There are many things a Sync-fitted Ford car will be able to do, but as indicators, incoming text messages will be read aloud as they arrive; Bluetooth is supported, for



streaming audio from mobiles, and it can also be used to stream Internet radio from Web-connected devices. Technologically, the most advanced feature is the automatic indexing of audio files on the player you connect, followed by music playback controlled via voice—as in "Play track *Hotel California* for the



1,118,902nd time." No, actually, you just say the name of the song.

All the big names showed off bigger display screens. Every camcorder on display was HD. Philips intro'd wireless HDMI; Samsung intro'd a wireless (802.11n) HDTV set (it does have the power cable). Will that power cord be done away with some day? A startup called Powercast showed off their wireless charging system for mobiles: place a transmitter near anything that is plugged into a power outlet, and it sends out a continuous RF signal. A device within range with either AA or AAA batteries and a Powercast receiver will get charged.

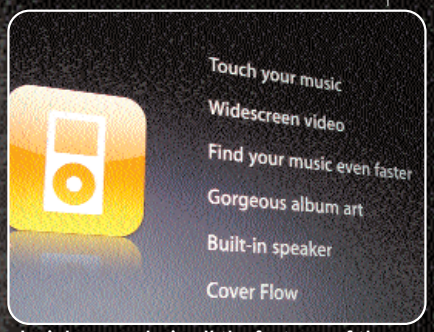
Amongst the could-do-withouts was the Sonic Shaker SBP100. "Shakes you awake with its powerful bed shaker and extra loud pulsating alarm." Visit cesweb.org for more. About the CES, that is—not the SBP100. ■

"An eye for an i"

We got a chance to visit Apple Computers' Ultimate Event (Oops!—they're just Apple Inc. now). Yes, *Digit* was invited to the **Macworld Expo 2007** at San Francisco. As it happened, Steve Jobs decided to launch the revolutionary iPhone right this year—so here we are, having gotten our hands on it. Touched it, felt it, caressed it, played with it, and tapped all over it. With over 200 patents filed by Apple on technologies that go into the making of this three-in-one device— phone + music player + Net communicator—Jobs and team have yet again proved they can create nothing but a winner. Here's a snapshot of all we saw, felt, and experienced at the Expo



Here comes the HotStepper!
The iPhone has no push buttons, requires no stylus—you just need fingers to tap on its multi-touch screen



The iPhone packs in all the features of the world's most-selling portable music player



A multitasking phone, this—read a Web page while your mail gets downloaded in the background



And yes, of course, you can also make calls with this beauty



What if the iPhone was given a retro look? But would you pay $499 (Rs 22,500) for this?

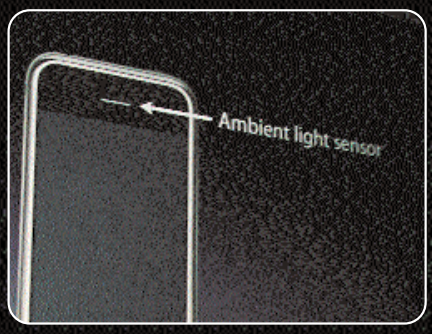


Now that's what it looks like without the pretty wallpapers

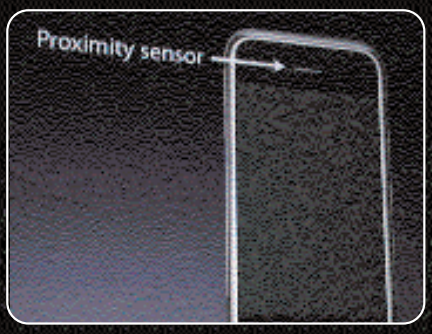


And it's as slim as it gets

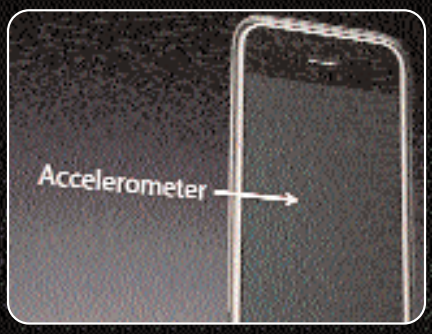




The iPhone's inbuilt Ambient Light Sensor automatically adjusts the display's brightness in accordance with the ambient light



Another sensor here detects the phone's proximity to your body, so if you bring it near your ear, the display turns off automatically. Intelligent, huh?



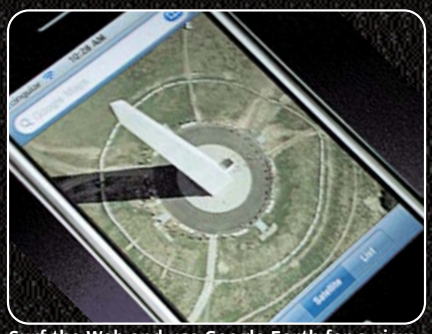
Flip the phone, and the display adjusts itself to landscape or portrait. That's the accelerometer sensor for you!



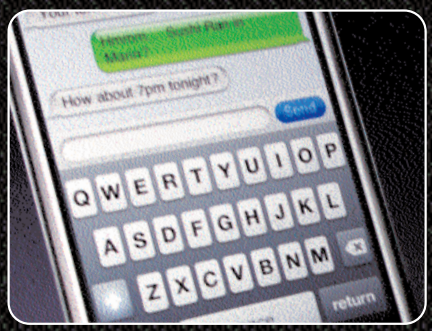
Google Maps on the iPhone lets you view detailed maps, locate your destination, and even call up some commercial spots in the US. But what's in it for Indians?



Log on to a site, view it horizontally or in portrait mode, and just tap on your favourite sections to zoom in on them



Surf the Web and use Google Earth for a view of all the pretty places



Type in your mails and text messages with a full QWERTY soft-touch keyboard. You can send and receive SMSes in multiple sessions—just like a Web chat



Yahoo!, in an exclusive deal for iPhone users, will offer a new, free, "push" IMAP email service. You can set it up by simply entering your existing Yahoo! username and password



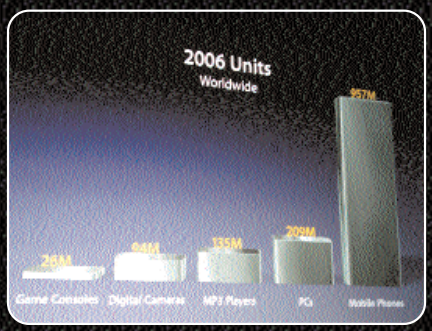
The only accessory announced for the iPhone as of now is the compact Bluetooth headset



So when is it coming to Asia? There you have it. There's no news yet about the India launch



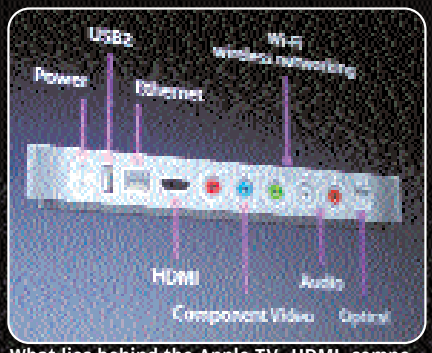
Apple has dropped the word "Computer" from their name. They are now Apple Inc.



975 million mobile phones sold last year—no wonder Apple now wants to be a Consumer Electronics company!



The second big launch—Apple TV allows you to wirelessly play iTunes content from Mac or PC on your TV, and also movies, TV, music, and photos. Cost: $299 (Rs 13,500)



What lies behind the Apple TV—HDMI, component video, analogue and optical audio ports, with Wi-Fi networking and USB too



From Maxtor, an innovative idea for a kiosk—these were strewn all across the Expo



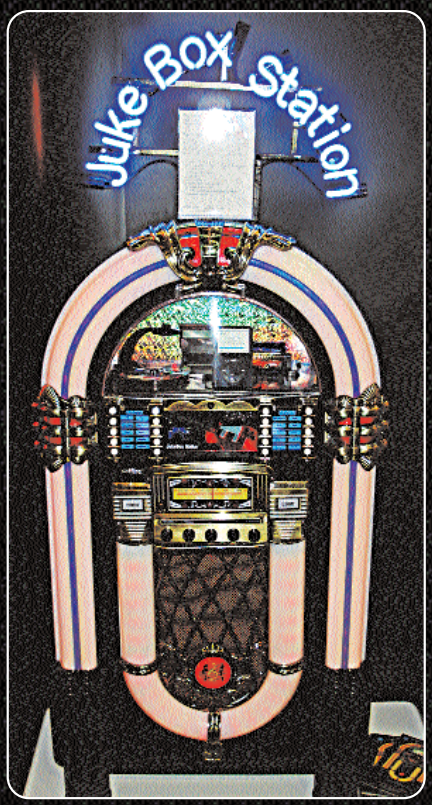
Mac fans don't usually come in blue collar, pin-striped suits. They'll sit where they can and work away—even in an alley or an open ground



The John Lenon Educational Bus: a mobile recording and multimedia studio. Students can record their own music and video projects here with Logic, Reason, Final Cut Pro & Live 6



If you just can't do without your music down under, take it along with these waterproof shell cases and headphones too



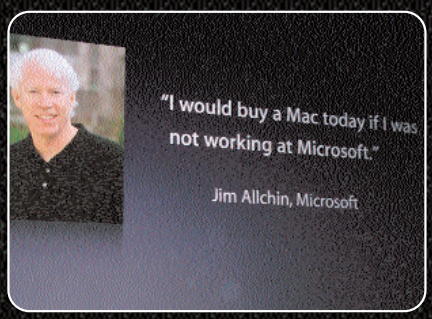
Old School meets the New—**Jukebox Station** with the universal dock for iPod is a trip down memory lane



iCarta is for the complete iPod addicts. A stereo dock and toilet roll holder this, it sure could compete with modern-day laxatives



I love my iPod. I trust no one. So I lock it



(A slide from Steve Jobs' Keynote address at Macworld this year)
They sure know how to spice up their presentations



And who do you think had the last laugh?

Cover Feature

Power 2 The People

Can piracy via P2P be stopped? Should it?

Robert Sovereign-Smith

Peer to peer (P2P) has been around for a long time now. Big software, music and movie corporations are against the piracy it fosters, users love it and pirates thrive on the notoriety it brings them. In our networked society, P2P accounts for the majority of the chit-chat (data transfer) globally. Studies have revealed that P2P networks, especially BitTorrent, accounts for over half the bandwidth used globally; so much so that standard Web surfing (HTTP) is nowhere in the same league.

So what's behind all the exabytes of data that's changed hard drives across the globe? Why is P2P so popular, and how will it change the future of the Net?

A Little History

Traditionally, the Internet is based on servers and clients. Thinkdigit.com resides on a server, which "serves" up files and content to anyone who wants it (the clients). The interface used by the clients to get this information is a Web browser, such as Internet Explorer, Firefox, Opera, etc. The data transfer protocol is called Hyper Text Transfer Protocol (HTTP), and remains the most popular usage of the Internet. Whether it's you hitting Google to find something, checking your e-mail, or browsing through a company Web site, you're using the Internet in the traditional way it was made for.

Now, somewhere along the line, people discovered that if so many people were online, all at once, perhaps there should be a way to talk to one another—a programmer somewhere said in a not-



Illustration Chaitanya Surpur

so-heavenly voice, "Let there be chat," and lo, chat was born. IRC (Internet Relay Chat) was the most popular of these at one point in time, but soon gave way to the Yahoos and MSNs. However, what IRC brought along with it was the ability to send a file directly to another user on the same server. Now some may argue that the Usenet BBS (bulletin board service) was the first P2P network, but IRC's @find is what most of us were using to find shared files back in the day.

Then came Napster! The rest, as they say, is popular history. For those of you who haven't heard of Napster's notorious days, or the Metallica vs. Napster battle, cease, desist, do a quick Google, read that, then come back!

The history of P2P and the justice system is made infamous mostly by this loss of a lawsuit by Napster's lawyers. Next, services such as AudioGalaxy, KaZaA, WinMX, eDonkey and the likes were hit. Today, BitTorrent is one of the last remaining bushes in P2P file sharing garden, and it's flourishing! The uploading and downloading on Torrent networks account for a majority of *all* Internet traffic across the world!

Legality

So it's all illegal? Why not just ban it all? Ah! If life were always that simple, the majority of you would have paid for your software, music and movies, and your computer would cost a good deal more...

P2P isn't illegal, per se—if you want to share your vacation video with the world, no one has the right to stop you! If you have a band, make music, and want the world to listen to it, you have every right to do so. The same applies for software you make, any movies you produce, and basically anything that is licensed under Creative Commons or is otherwise open source. There are terabytes of movies, music, applications, operating systems and other digital content that can legally be shared on P2P networks. Granted, legal P2P accounts for almost nothing of the global P2P bandwidth, but it is this very small segment that P2P software caters to.

No one can blame P2P software for piracy; that shame falls solely upon us users of the software.



"A piece of art is not a loaf of bread. When someone steals a loaf of bread from the store, that's it. The loaf of bread is gone. When someone downloads a piece of music, it's just data... Treating your audience like thieves is absurd. Anyone who chooses to listen to our music becomes a collaborator."

Jeff Tweedy
Frontman, Wilco, in an interview with *Wired*
Photo courtesy Plexifilm

Advantages

P2P networks are actually a great boon, especially to open source content creators. Consider this: you are a software developer; you magnanimously decide to create a useful application without wanting to sell it commercially (for example, a Linux distro). You spend months (if not years) developing it, at your own costs, and now find that in order to share it with the world, you will have to incur further costs of buying Web hosting bandwidth. God help your wallet if your software is as popular as say, the Ubuntu Linux distro. With millions of people downloading the 700 MB odd CD image, you're certainly going to get a big bandwidth bill every month!

However, thanks to P2P, you have an option. First you find some friends who have fat pipes at home or work, get them to download the software from you, then make a Torrent, upload it to a popular legal torrent site (or just host it on your own site), and instead of millions of people downloading 700 MB each, you get millions of people downloading a small 7 KB .torrent file each and then downloading the 700 MB from your friends who are also hosting the file. Plus, the more people that finish downloading the file, the more "seeders" you have and the less the strain is on the original hoster's bandwidth! Thus, communities are born! Apart from saving tons of hard cash in bandwidth costs, P2P can help you develop a community, quite like a forum does; and then there are the ideas that don't involve any file sharing at all!

P2P With A Difference

Have you heard of Skype? Again, if you haven't, Google it, read the first link, come back...

Fighting Back

Those of you whose preferred weapon of mass consumption is BitTorrent, using client software such as BitComet, Azureus, etc., might sometimes find that you have downloaded a lot of rubbish data (data that doesn't pass the hash check/checksum). Every torrent is broken up into pieces, and each piece downloaded from many peers in a swarm (collection of peers and seeds that you're connected to). Now each .torrent file contains a hash check/checksum for each piece of the large file, and every time your client finishes a piece, it does a hash check and then compares it to the information in the .torrent file. If the checksum/hash check fails, the data is discarded and has to be re-downloaded.

This can happen for both legal and illegal downloads, because of a network error, garbled data, viruses, and of course, rogue seeders or peers. Recently, however, there have been several complaints of a lot of rubbish data being downloaded by P2P users, especially when downloading pirated content. Upon further investigation by P2P experts, most of said "rubbish data" seemed to be originating from a few companies who seemed intent on foiling the attempts of users to download pirated content. Now rumours on P2P networks suggest that these are companies that have been hired by the RIAA (Recording Industry Association of America) to fight piracy on the Torrent network, but they just as easily could be virus infected subnets. We're not here to judge whether such rumours hold any truth to them, and since quite a few people have reported receiving rubbish data even when downloading legal content such as Linux distros, we've got a solution.

What you need to do is run another program such as PeerGuardian 2 (**http://phoenixlabs.org/pg2/**) along with your Torrent client. PeerGuardian 2 is nothing more than a Windows IP blocker, which prevents you from connecting to any IP that it deems "unsafe." The list of blocked IPs is updated centrally on the Phoenix Labs server by monitoring P2P networks and checking which IPs are sending out rubbish data, for whatever reason. The program on your computer then updates itself with these IPs on a regular basis. Since these IPs are blocked by PeerGuardian 2, Windows does not allow your Torrent client to connect to them, and thus stops or at least reduces the amount of rubbish data you receive.

In order to not block HTTP access to any sites, and thus affect your browsing experience, PeerGuardian 2 allows you to choose what ports to block, and whether to allow access via port 80 (HTTP) to even blocked IPs. It also has some more options of blocking access to US government sites and even sites that record your IP address.



Janus Friis (left) and Niklas Zennström (right) are the brains behind two of the biggest P2P software, KaZaA and Skype

So by now you should know how big a revolution Skype started in terms of Voice over IP (VoIP). The difference between Skype and all the other VoIP solutions before it was the fact that Skype was designed to be P2P software, and in fact, comes from the same people who gave us KaZaA! This means that Skype can sustain millions of users, with hardly any infrastructure costs. In fact, the more users it has, the cheaper the bandwidth per person on the network—in true P2P style! Here, instead of files, users are helping each other "talk" to other Skype users across the globe by exchanging data packets that carry voice.

Red Swoosh (**www.redswoosh.net**) offers P2P-style sharing of large multimedia content or files. All you have to do is install the client software, and when you click on a "Swooshed" link, you get to download the content from other people who have also downloaded the same file. If you want to put up a large video on your site, but do not want to pay for huge bandwidth costs, this might be the way to go.

There are many more such ideas, all involving P2P, and all quite legal and helpful.

We Want To Be Entertained

Games, movies and music are the prime sources of entertainment for most of us, and thanks to P2P, albeit quite illegally, we can find whatever we like online, for "free." With broadband becoming a reality in India, for those who are willing to pay for it, the latest in entertainment is just a few clicks and a few hours of downloading away. Piracy was never easier!

Though the most popular way of legal distribution via P2P is currently BitTorrent, unfortunately, it is also the most popular for illegal pirated content as well!

Be it music, movies, the latest games and even software, it's all easily available. For us Indians, this is the icing on the cake! Most of us refuse to pay for what we can, and essentially get for "free." Ignorance of the laws plays a part here, but honestly, most of us just don't give a hoot for "foreign" laws. As far as software is concerned, we at *Digit* have got thousands of mails regarding piracy, with the general sentiment divided: one camp feels piracy is the fault of the software manufacturers, who price their software too high, in accordance with US pricing, instead of pricing it lower to account for the lower average salaries here in India, while others, mostly Open source supporters, say that breaking the piracy laws when good free software is available is just inexcusable! Rather than rekindle this debate, let's leave software and games out of this and focus on movies and music.

The same arguments just do not hold true for entertainment! We cannot blame high price tags for the piracy of movies or music, yet most of us seem to have loads of MP3s and have seen all the latest movies, sometimes even before they're released in theatres here! The average American pays anywhere from three to five times as much as we do to watch movies in a theatre, and also pays more for music CDs. So what's our excuse?

It's not just Hollywood and US and European music that's being hit here—you can find everything from Bollywood movies to *ghazals*, classical and *bhangra* on P2P networks. Every AVI or MP3 on our computers translates to a loss in revenue for the artists and the producers and recording labels. Most industry personnel now think the word piracy is just too light, and prefer to call this theft!

In the perfect world (from the perspective of the entertainment industry), every person who watched a movie or listened to an MP3 would have paid for it. This means the costs associated with buying or renting a movie DVD or paying theatre charges, and buying an album CD, or purchasing the single track online. That's literally billions upon billions of rupees worth of revenue being lost due to piracy, and the entertainment industry is taking things seriously. We're still living sheltered lives here in India, thanks to laws that put piracy in what can only be described as a grey area, but things will change soon, that you can count on.

Opposing Forces

Not every artist thinks of P2P as a bad thing; not every recording company shuns P2P like the plague! There have always been two sides to every coin, and though not lit in large neon signs, backed by billions of dollars, there are still approving whispers for P2P from around the globe. The music industry, especially the RIAA, has been criticised immensely by a few artists and smaller recording labels. From small whispers of dissent to outright calls for boycotts, there's a very colourful opposing viewpoint. Some of it goes thusly:

With broadband becoming a reality in India, for those who are willing to pay for it, the latest in entertainment is just a few clicks and a few hours of downloading away. Piracy was never easier!

How To Tell

A lot of P2P users just claim ignorance of the legality of what they're downloading. Unfortunately, ignorance is not a plea that is going to do you any good in court. Here are a few tips to help you make sure that you're downloading safely.

- You're being offered a "free" download for something that's being sold online as well. You can find this by doing a Web search for the content you're downloading.
  Verdict: Stop! Illegal content detected...
- You visit a site that is offering content you like, but instead of charging you per item of content (song, album, movie, software, etc.), you're being asked to pay a membership fee that entitles you to unlimited downloading of *anything*.
  Verdict: Ahoy! Piracy ahead!
- The content you are downloading comes with a description of a "Creative Commons" license or has the words "Open Source" in its license agreement.
  Verdict: Download away. Enjoy your legal content.
- While browsing for trailers of a new movie, or details about a song, you find a site that's giving the movie/music away for free. The filename also has one of these words in them: cam, DVD-rip, Stolen, warez, Telesync, Telecine, rip/ripped, MP3, etc.
  Verdict: Skip past Go, don't collect $200 and go directly to jail!
- You find that software that does exactly what you were looking for, but the download details include .nfo or .txt files with omi nous sounding names. There might also be a file called "serial", "keygen" or "crack". Or perhaps the site you are going to down load the file/Torrent from contains such words, or advertise ments from pornographic sites. Further searching also reveals that the software manufacturer is only offering a time/feature limited trial version, and the license costs money...
  Verdict: Welcome to the world of piracy. Download this and your dreams of becoming a criminal will be fulfilled.

You're all sheep! All being herded into nice little groups, and sheared... instead of wool, you're being shaved of your hard earned money. Thanks to big budget music videos, billions of dollars of marketing campaigns and paid-for airing of a particular type of music, you're being forced to buy/listen to music that is manufactured. This music is tailor-made to attract you; you're brainwashed into listening to it and, for the lack of anything better, liking it as well. How? All the music you hear comes from a few major recording labels, so few that you can count them on your fingers. The latest heart-throb is just a cute face that some recording label suit liked, made popular by a song that was written, composed and, in some cases, even performed by unknown, talented artistes. The genre, the rhythm, is all based on the statistical feedback of market surveys, and everything is basically just manufactured!

Extreme? Sure, but hardly unbelievable... Here are a few excerpts from www.downhill-battle.org, a non-profit organisation that aims to let us sheep decide how to spend our wool, and why they think the world needs to be rid of the monopoly that major labels have on music!



www.downhillbattle.org, ever the P2P-ers' ally in the fight for freedom

"The major labels' business model requires them to have a steady stream of consistent products. The very nature of their operation produces homogenised music designed for specific radio formats and scientifically honed to hit-making models. Artists are signed and promoted based on the opinions of individual A&R executives, not the popularity of the music. When the major labels crumble, the diversity of mainstream music will blossom. It will be a revolution in pop culture. People will decide what's popular, not marketing.

"For decades, the major labels have controlled what's on the radio by paying radio stations to play their songs. Pay-for-play radio (aka "payola") means that independent labels can't get their music on mainstream radio and mediocre major label music gets on the radio just because somebody's paying.

"For artists on major labels, label bureaucrats hijack the sound and control the final product. The label picks the producer of the album and they can always refuse to release it; sometimes labels even trash entire albums. And at the end of the day the label–not the musician–owns the copyright to each song.

"The major label system is the biggest barrier to musicians making money off CDs. Major label artists only start getting their tiny share of royalties (5-10%) once they've sold over 500,000 units. Independent musicians can get a bigger cut, but thanks to major label payola they can't get on the radio and won't reach a large audience."

Now you can choose to think of all this as sour grapes, or a very nice eye-opener, and the choice is purely yours. However, you're probably wondering what all this big brotherly talk is doing in an article about P2P... well... you should visit **http://www.eff.org/share/collective_lic_wp.php** for an interesting idea on how P2P can help revolutionise the way we get our music.

In short, the Electronic Frontier Foundation (EFF) says that instead of suing a few Americans for downloading music, perhaps we should just charge every individual with a broadband con-

nection a small monthly fee (say Rs 250), and allow them to download all the music they want from P2P, without any legal issues. Sound strange? Here's how they propose this "Collective License" idea would work...

If millions of people across the globe (P2P users) paid a small fee for the freedom to download absolutely any music available on P2P networks, legally, then that translates into billions of dollars worth of *profit* for the recording industry! In fact, if the amount is really as little as $5 (Rs 225) per month, ISPs themselves will be only too happy to pay the amount for their users, considering that they'd be able to market it as a broadband connection with free, unlimited music downloading! With people paying anywhere from Rs 1,000 to Rs 3,000 for always-on 256 Kbps connections around India, who would mind a few hundred Rupees more for the peace of mind that such a scheme would offer?

How would the artists and recording companies make money? All you need to do is visit **www.bigchampagne.com**, for the answer! Big Champagne is a media research company that monitors retail outlets, online music stores, streaming video and music, and yes, even P2P sharing. For P2P, they monitor what is being downloaded, legally or illegally, to find what music is the most popular across the world.

Such data could be used to distribute the money that could be collected if we used the EFF's strategy of legalising P2P. Artists and labels whose songs are most downloaded would get a bigger piece of the Collective License pie. This would also ensure that good music, and not marketing campaigns, music videos and promotion gimmicks, would be rewarded. Indie artists rejoice!

Let's face it: with huge grey areas caused by differing laws across the world, P2P is here to stay

Keeping It Legal

With all this talk of piracy, the RIAA, lawsuits, jail terms, etc., it's no wonder that there are quite a few people who are paranoid enough to not even install P2P software, and even those who do not download anything at all! However, you need not worry, because there's enough free content out there that is licensed under some Creative Commons license that you're free to download, by law.



www.bittorrent.com: This is where it all started for the Torrent network. However, now all you will ever find here is free and legal content. So long as you download a torrent directly from BitTorrent.com, you should have no fears.



www.legaltorrents.com: This is another completely legal site, with legal content. There's just one page of content, so read carefully. Also we suggest subscribing to the RSS feed to stay updated with content that falls into the legally downloadable domain.

www.mp3.com: This isn't P2P, and most of it is actually streaming music. Just visit the Free Music section of the site to find some very nice bands giving away sample tracks of their music for free. Don't expect to find major artists in this section though!

What About CDs?

What about them? Those who still want to buy them will do so. The idea is not to stop producing CDs or albums or even DVDs. The idea is to legalise the file-sharing that the recording labels are crying foul from. This is why a Collective License would reap pure profits. Audiophiles, for whom 192 Kbps MP3s are akin to blasphemy, will still be able to go out and buy DVD quality sound for themselves. You will still get entire albums in stores, both online and offline, and basically everything about the industry will remain unchanged. The only difference is that the recording industry starts making profits off the P2P phenomenon they're currently cribbing about, and all of us can download and listen in peace!

Will It Work?

Of course, this can also apply to movies, games, software and basically anything—all it needs is the support of the companies that are currently fighting P2P. Easier said than done; which is evident from the fact that although the idea of a Collective License has existed for quite a few years now, no headway seems to have been made.

Besides, this idea isn't new, and for those who doubt that such an idea might even work; consider the radio station business. What was once considered a business of piracy, just as P2P is now, the radio industry is today a working example of a similar Collective License. Instead of paying for the license of every song, radio stations pay a high license fee to associations such as ASCAP (American Society of Composers, Authors and Publishers) or BMI (Broadcast Music Incorporated), for the freedom to air anything licensed by these associations—which is almost every song ever created. These agencies then pay the artists royalties based on what's popular, for the rights to allow radio stations to broadcast their music. In the end everyone's happy, everyone makes money, and we get to listen to the latest music on air. Since this also involves online radio, it's only a matter of juxtaposition to imagine this working for P2P.

Inevitable?

So is this the way that P2P will go? Unless someone comes up with a better solution, it certainly seems a likely possibility. Let's face it: with huge grey areas caused by differing laws across the world, P2P is here to stay. Is the uploader the criminal? Is the downloader breaking the law? Should we sue the software creator? Try and shut down every Torrent hosting site? Get better DRM solutions? Sue a billion people across the world? With so many questions, and so few sane answers, a solution is desperately needed, and none of them make more sense right now than a Collective License. How long will the RIAA continue to sue individuals before it realises that it is losing potentially billions of dollars of profits by not adopting such a solution? Will egos ever deflate, allowing for saner solutions? What else can we do but wait and watch?

For now, you just have to live with your conscience when downloading the latest Metallica concert, and hope that the RIAA doesn't come a-knocking, dragging you away to court while you yell, "Power to the people, long live P2P!" ■

robert_smith@thinkdigit.com

Read Me My Rights

A look at the digital world's newest bitter truth—DRM

Nimish Chandiramani

Digital Rights Management is a good thing. That's what *They* keep telling us. It "protects the creators," fights piracy, and most importantly, gets *Them* the money *They've* been crying about while the world wantonly shares *Their* content over the P2P networks. The debate over DRM—specifically for music and movies—now rivals in proportion such favourites as Paid versus Open Source software and "Does No *really* mean No?" As the war against piracy gets more frustrating, content creators get fiercer in the measures they take to protect their work, and it seems that whether we like it or not, DRM is going to be one of those inconvenient realities we have to deal with.

The definition, of course, is as harmless as can be—defining limitations to media to ensure the artists' / creators' intellectual property isn't misused. In theory, then, DRM is basically an implementation of the Copyright Act of the country—instead of telling people they can't do something and then *hoping* they won't breach the law, why not ensure that the media prevents its own misuse? All this makes complete sense, too—at least while companies aren't thinking up newer and more boneheaded schemes to implement it (remember the Sony rootkit incident?). Before we jump to any conclusions about the goods, bads and uglies, let's spend a while understanding how this whole system works.

Brass Tacks

At the heart of every DRM technology is cryptography. The media (music, videos, software, even documents) is encrypted until unlocked with a "key"—a string of data that enables reversing the encryption (for more on cryptography, see box *Cryptography*). You should find this familiar—we've all used software that asked us for a serial key to run it. If you find *that* familiar, you'll also recall how easy it was to crack those systems. The Request Code-Authorisation Code system came soon, where the software would "phone home" with a request code,

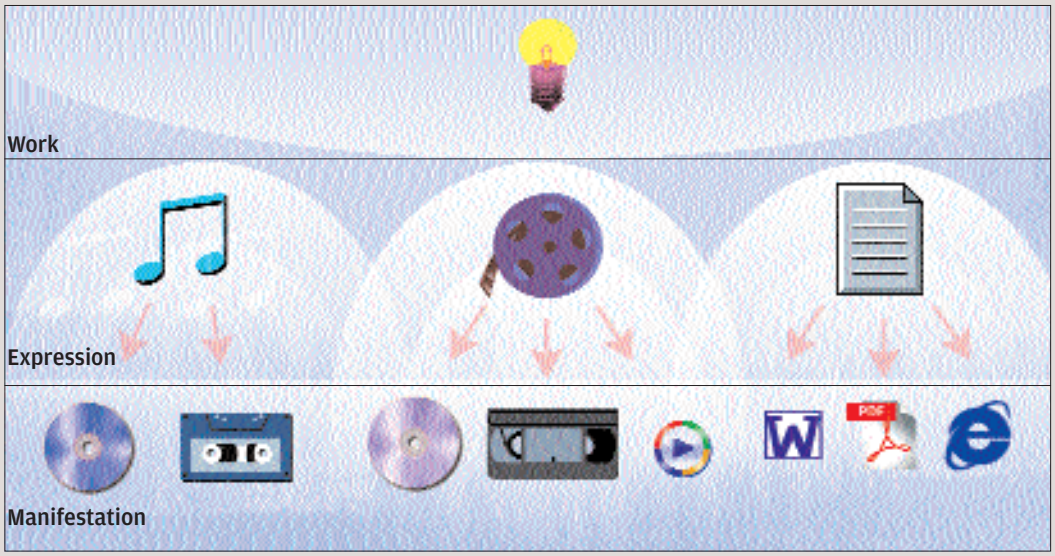


Illustration **Pradip Ingale**

which would then be verified by their servers, and return you a final authorisation code that would unlock the software. This works better, but it's been bypassed too—just like every system that involved actually *giving* the key to the user.

When Windows XP was launched, it not only activated itself over the Internet, it also locked itself to your hardware—so your hardware ID numbers now became the key to use it. The scheme was dropped soon, because a simple hardware upgrade could put your XP out of commission. Still, the concept of using a key that users couldn't control (and therefore couldn't alter) remained, and is still evolving in the DRM techniques we see today. Windows Vista, for example, will allow you five upgrades before it recognises your PC as invalid.

While it started out as simple copy-protection, DRM has now evolved into a much more complex beast, not only defining what you can do with software and media—in an End User License Agreement, for example—but making sure that those guidelines are followed as well.



The content model

The DRM Model

Designing a DRM scheme where both users and content creators are happy, has, and will continue to, give companies sleepless nights in coming years. At the highest level, they have three aspects to consider (the jargon refers to all content—software, media, etc.—as *assets*, so we'll do the same for convenience):

1. Creation: This deals with creating protected assets and defining the rights users have over them. This is basically defining the aspects of the law under which the content is protected. Once this is done, assets are ready to be sold.

2. Management: This deals with managing asset sales—assigning licenses to users, making sure that royalties get to the creators, and so on.

3. Usage: Once you've got a DRM-ed asset, it needs to verify a lot of things. Most importantly, it needs to check whether you're authorised to use it. This aspect also involves keeping tabs on *how* the asset is being used—if there's a three-copy restriction, for example, this is validated every time the file is copied.

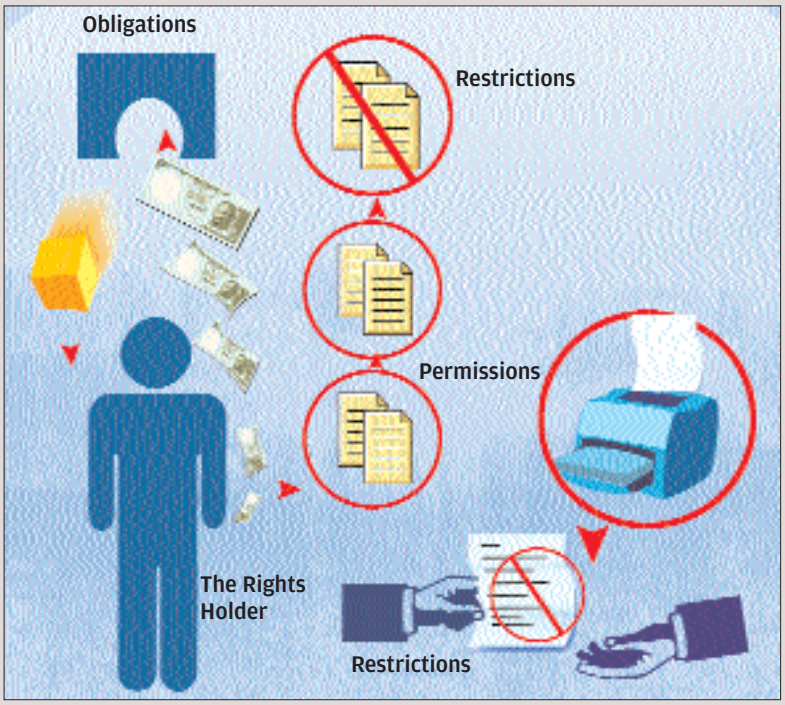
All this, of course, is a very high-level look at things. Managing protected content involves a whole bucketful of e-business models, for example, and as we'll see next, creating protected content isn't exactly a piece of cake, either.

The DRM Trinity

In the creation of protected content, we need to consider three entities—users, their rights, and the content itself. All three entities, their attributes and the relationships between them need to be expressed in terms that can eventually be translated into software. Some legal jargon follows, you have been warned.

Content is modelled as a hierarchy, starting at Work, which is the creation. The Idea for this article, while it evolved in the writer's head, is an example. The Work is then translated to Expression—the manner in which the idea takes form—in this case, the text of this article. The Expression is then dished out to the world as one or more Manifestations, which is a physical (or digital) realisation of the content.

Taking the example of the article, the original Word document, the print version you're reading now, and the PDF version you'll get in



The rights model

our Special Issue are all Manifestations. Finally, the Item is an actual copy of the Manifestation.

Next up, the rights—there are four aspects to consider. Firstly, the Permissions—what you're allowed to do with the content. For example, you're allowed to read this article, but not copy any content from it. Closely tied to Permissions are Constraints, which put limits on your Permissions. In similar vein—you may use some content from the article (permission), but you *must* quote the source of this content (constraint). Then there are Obligations, which you must fulfil before getting access to your Permissions. You've paid for this magazine, so your most important Obligation is out of the way. Finally, all these are mapped to a Rights Holder. Different persons have different rights over media—while you don't have the permission to reproduce this article, Jasubhai Digital Media is free to do so.

Coming Together

All right, so we've made the pretty diagrams—time to turn it into reality. Note that all the information we talked about in the models is *metadata*—it isn't actual content, just information to supplement it. The job of the DRM implementation (effectively just code embedded into the file) has the following things to do:

1. Verify that all the Obligations have been fulfilled—that the content has been paid for and being used by the buyer,
2. Decrypt the content for use, and
3. Track the use and see that it conforms to the Permissions.

In real terms, metadata is expressed inside a special XML document, which conforms to a specific structure called a *Rights Expression Language (REL)*. The structure of XML permits the easy realisation of the models we discussed earlier; moreover, its plain-text nature makes it light and compressible to miniscule degrees.

One REL that hopes to become a universal open standard is the W3C's Open Digital Rights Language (ODRL)—read about it at **http://odrl.net**. An open DRM standard will enable protected content to run on any system without problems—something we don't see in the crowd of DRM technologies we have to deal with today.

Our Top 5 DRM Boo-boo List

5 RealNetworks' Harmony vs. Apple: They made their Harmony DRM system work with the iPod; Apple disabled it in the next firmware update. They made it work again, and Apple disabled it again. Then they gave up.

4 4. Owner Exclusive e-Books in Microsoft Reader: They even put restrictions on text-to-speech!

3 3. StarForce deemed malware: It installed without warning, didn't uninstall, and took a toll on IDE performance.

2 2. The Sony rootkit incident: Shame if you haven't heard of this before, do a quick Google or visit **http://snipurl.com/17uk1**

1 1. The Zune dumbness: Music bought from the Zune marketplace doesn't work on PlaysForSure devices, and PlaysForSure doesn't play on the Zune, despite both technologies being from Microsoft! Talk about shooting yourself in the foot.

Fair Use And Other Stories

To understand what the DRM fuss is all about, you need to understand one aspect of copyright law in particular—fair use. It's one of those vague, infinitely exploitable loopholes that every Copyright Act is plagued with.

To dumb it down considerably, every restriction specified in the act is forgiven, as long as it constitutes a "fair use" of the content. In the early days of the videocassette, courts in the US ruled that taping a TV programme for later viewing constituted fair use—the consumer *has* paid his subscription amount and is thus entitled to the content. Copyright law, on the other hand, expressly states that the content may not be reproduced at all. What makes fair use even more of a mess is that every country has a different definition of it. Ripping music off a CD has widely been accepted as fair use, but giving that ripped music to your friend is a no-no. Letting your friend *borrow* the original CD is fine, however. Go figure! And yet, some countries won't even accept the act of ripping as legal.

Still, fair use clauses are essential—imagine being charged a "performance royalty" for whistling your favourite tune in public. Even more complications arise because the definition of fair use is constantly evolving: in 1980, for example, nobody would have imagined that you could record live TV to your PC, so the definition had to be expanded to include that.

If you're worried about whether your usage counts as "fair", fear not. Here are questions you need to ask yourself:

1. What is the purpose of this use? Personal use is often counted as fair, but the second you enter the realm of distribution and commercial gain, you're breaching copyright law. For example, you can use a song from your music collection to make a remix, but you can't sell it.
2. What is the nature of the work you're using? Creative work—movies, music, articles,

Cryptography

Suppose you wanted to send the number 50 to your friend, but want to ensure that nobody who intercepts the message on the way knows what number you're sending. You could multiply it by 6, add 4, divide by 3 and subtract 9. Anyone who sees the message now will think you sent 92.33333. The process is called *encryption*, and performs a whole host of mathematical operations on data to make it unrecognisable. In *decryption*, these mathematical operations are just reversed to recover the original data. Of course, the system fails if anyone figures out the encryption algorithm. The next secure way for encryption is the use of a "key"—a number that is used for these mathematical operations. Without the key, decryption isn't possible, so as long as nobody has the key, your message remains secure.

The most popular method for secure encryption is the Public Key-Private Key system. Think of it as a box with two keys—anyone with the public key can lock it, but only the person with the private key can unlock it. When you register yourself at an online music store, for example, it gives your media player a public and private key—unique to you. When you request a song, your media player sends over the public key, which is then used to encrypt the song you requested. Only your private key can decrypt this song, so unauthorised media players (ones without your private key) can't decrypt it.

Names We Love And Hate

DRM technologies that we encounter most often:

FairPlay
The Perpetrator: Apple
The Terms: Works on five "authorised" copies of iTunes, unlimited iPods, can be burned to an unlimited number of audio CDs.
Find it on: Music bought from the iTunes Music Store
Works with: Any player with the QuickTime plugin (PC), iPod (portable)

Windows Media DRM
The Perpetrator: Microsoft
The Terms: Licenses and media are distributed separately, and locked to a computer and portable player
Find it on: Music bought on Napster, URGE and Wal-Mart, to name a few
Works with: Windows Media Player 10 (PC), any portable player with the PlaysForSure logo

Zune DRM (not the official name)
The Culprit: Microsoft
The Terms: Incompatible with PlaysForSure devices, expires after three days or three plays if "beamed" from another Zune
Find it on: Music bought on the Zune marketplace
Works with: Windows Media Player 10 (PC), Zune (portable)

And there's game DRM to tangle with, too: StarForce
The Perpetrator: Protection Technologies
The Terms: Wraps around DLLs and allows access only through its own virtual machine
Find it on: Games published by CDV (pre-May 2006), Ubisoft (except North American releases), Digital Jesters, JoWooD (except North American releases), Egosoft, and Codemasters. Also the free game TrackMania Nations—to ensure that nobody tampers with ESWC ranking system

SecuROM
The Perpetrator: Sony DADC
The Terms: Resists copy attempts by optical drives
Find it on: Newer games published by Ubisoft, Sony

SafeDisc
The Perpetrator: Macrovision
The Terms: Resists copy attempts by optical drives, blacklists all SCSI drives (mass replicators use SCSI drives)
Find it on: Games published by EA, Activision, id Software

etc.—are more fiercely protected than factual work like chemical equations or statistics.

3. How much of the work are you using? Taking the example of point 1, using an entire song or movie is likely to get you into more trouble than using a couple of snippets.

4. Finally, what effect will this have on the market? In the early days, even P2P passed off as fair use—what's a couple of songs between friends, right?—and look at what happened. If you're depriving people of money they should be getting (or think they should be getting), you're in for trouble.

The Trouble With DRM

One of the things that fair use allows you to do is make as many copies of media as you want, as long as it's for personal use. DRM-ed content today, however, puts restrictions on the number of copies you can make, so if you go through one hard disk upgrade too many, the song will expire, and you'll have to buy it again. So much for fair use...

We've been talking about how DRM is the implementation of a copyright act—what we failed to mention is that that is how DRM *should* work. In reality, all DRM technology you see today is geared towards one thing—money. We have it, They want it, and They'll go to any length to ensure that we can't get content without paying for it, even if we're within our fair use rights to do so—Hollywood even admits this internally!

Does this mean that we don't have our rights any more? Of course not—unless the laws are changed. What it does mean is that DRM, depending on the way it's implemented, may well prevent you from exercising those rights. In the long term, DRM will also hinder the evolution of your fair use rights—if TV serials aired with a "do not tape" flag that prevented your VCR from recording it back in the 80s, the question of it becoming a fair use doesn't even arise. Ditto the ability to rip CDs to your hard drive. Effectively, DRM and copyright acts are in stark contrast—copyright law says that if it's not restricted, it's permissible, but DRM says that if it isn't explicitly permitted, it's off limits. Now you know why it's also been called Digital Restrictions Management.



DRM And You

It's an obscure fact, but did you know that music cassettes and blank tapes you bought so many years ago came with their own "piracy tax"? Record companies assumed that these cassettes would be copied and shared with friends, so they added a little bit to the prices to compensate for any losses they might face. There is talk that this may stage a comeback, and we might even be rid of DRM in the next three years. If you haven't already, flip back to page 29 and read the talk about the "Collective License" under *Opposing Forces* in *Power 2 The People*. The fee you'll pay for the freedom to download all music is basically the cost of content plus a little piracy tax—and no DRM!

Peter Jenner, Pink Floyd's first manager, sums up the situation quite eloquently: "Big record labels are f***ed", he says, and "digital music pricing has been a scam where the consumer pays for manufacturing, distribution, and does all the work—and still has to pay more. The DRM era is nearly over—and within two or three years, most countries in the world will have a blanket licensing regime where we exchange music freely, for a couple of quid a month."

It's a tad idealistic to pessimists like us, but optimism is healthy. In the meanwhile, brace yourself for an inconvenient couple of years—at least. ■

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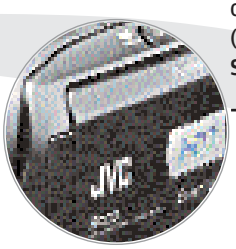


JVC Everio GZ-HD7

With true 1080p LCDs and projectors emerging, it seems the era of High Definition entertainment is here. Trust JVC to make a mark. Their Everio line-up of compact camcorders has a new member—the first ever camcorder to incorporate recording at 1080p. JVC, anticipating the enormous size of video clips at this resolution, has been thoughtful enough to drop in a 60 GB hard drive.

Using their very own MPEG 2 transport stream video format (as opposed to AVCHD, which is regularly used), the Everio GZ-HD7 gives you up to five hours of glorious 1080p recordings at 30 MBps. Want to watch your recordings? The GZ-HD7 gives you three digital connects—HDMI, USB, and i-Link. At around $1,800 (Rs 85,000) it's a steal!

Site: www.jvc.com



Droolmaal

The good stuff.
Stuff to lust after.
Stuff for the well-moneyed.

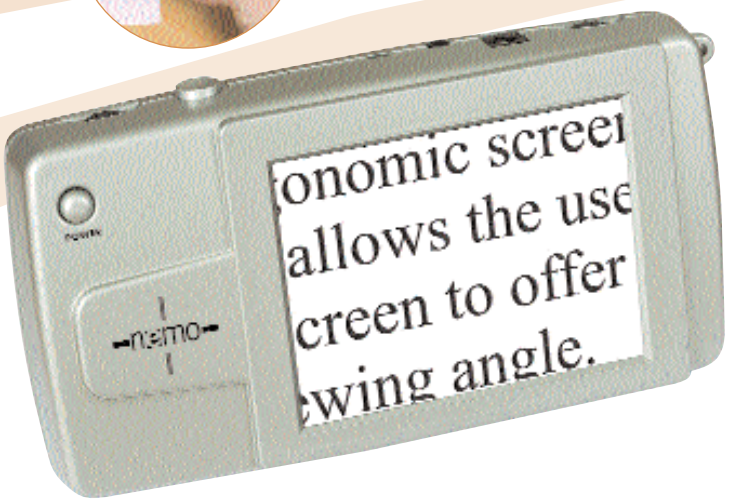




Nemo

Here's one Nemo that won't cause nightmares from the deep! Designed for the visually challenged, this pocket-sized, ultra-portable digital magnifier from Enhanced Vision offers a 4-inch anti-glare screen with which to view fine print—such as charges on your credit card statement. Nemo takes clarity to new heights with 4.5x to 9x digital magnification. Irrespective of how illegible the material, Nemo will make sense of it all. Cost? Rs 50K. Get one just for the geek-image value-add!

Site: www.enhancedvision.com







Bang & Olufsen BeoLab 5

When you think BeoLab 5, think revolutionary! A breakthrough marvel in acoustic engineering, it took six years to develop this speaker system. For the first time you have complete freedom to place speakers wherever you want to in a room without bothering about acoustics. The aural experience is completely independent of your position in the room, and so is the volume level (irrespective of how high and low it may be).

This level of pure sound is possible because of Acoustic Lens Technology, which ensures a constant tonal balance while you move around. BeoLab 5 is also totally digital, meaning the speaker can adjust to changes in its environment by automatically reprogramming itself. It also monitors heat levels to ensure smooth playback for prolonged periods while avoiding damage.

Available in India at an MRP of Rs 12,20,000 a pair, you'll have to mortgage your house to buy one, but this is every audiophile's dream! Just in case you don't have 12 lakhs to blow, find a showroom near you at their site, and beg for a demo!

Site: www.bang-olufsen.com

Sharp LC65GD1E 65" LCD TV

How does 65 inches of pure HD visual perfection sound? Sharp's Aquos sports a full 1920 x 1080 resolution with a pixel response time of just 6 milliseconds, the LC65GD1E is fast—fast enough for you to experience HD sans ghosting. Then there's the high contrast ratio of 1200:1. The LC65GD1E is Digital Cable ready. A brightness of 450 cd/m^2 means it can be placed anywhere in your room, even near windows. The TV sports super-tough Titanium as part of its construction material. The LC65GD1E can be yours for a bargain price of $10,000 (Rs 4,50,000).

Site: www.sharp.co.uk





Alienware Area 51 7500

When thinking of Area 51 think big, think huge, massive, think out of this world. It railroads all lesser "high-performance" rigs, grinding them beneath its monstrous processing power—whether central, graphics, or audio! Under that alien-ish looking body purrs real horsepower. How does an Intel Quad Core QX6700 at 2.66 GHz sound? Throw in 4 GB of ultra-low-latency DDR2 800 MHz memory. Add two GeForce 8800GTXs with 768 MB of GDDR3 memory. And finally, a Creative X-Fi Platinum. Wait, there's more—a 30-inch Dell widescreen monitor supporting 2560 x 1600, and a RAID 0 array of 10,000 rpm drives. Price? A mere Rs 2.8 lakh—less or more, depending on what you want to add or subtract.

Site: www.alienware.com

Along Equal Lines

With the tin-can versions gone, we're wondering what the new humanoid-type robots will be up to

Ram Mohan Rao

Researchers are falling over themselves to re-enact The Creation, and people are already accepting robots as friends, companions and lovers. In Japan, household robots number in the millions. Most robots today are things like vacuum cleaners, and the rest are doing some cute, some interesting, and some boring things like carrying on micro-conversations ("What is your name?"), climbing stairs, saying "Whoa!" when pushed, playing football, eating sushi, and serving as receptionists. (Spot which one we made up.)

The mindset towards robots has changed in a surprisingly short span of time. A couple of decades ago, they were seen as curious toys, or as miracles, or as dangerous entities that would threaten our domination of the planet—in short, much ado was being made about them. Today, tell someone "Fitzy" won the annual table tennis championship for robots, and he'll tell you who won the rock-climbing championship.

We're amazed at the intelligent things these once-toys can do. What will they be able to do a decade from now? Thirty years? Will it be like in *Bicentennial Man*, where they're almost part of society, with the same status we accord to ourselves? Will they be classified as a species? Will they have noisy sex? Just how intelligent can they really get? Etc. etc. etc. Of course we don't know any of the answers, but it won't hurt to take a romp through the questions.

Eye To Eye

Pong, the Sympathetic Robot, was developed several years ago at IBM's Almaden Research facility. It is a moving head that "sits on a table and looks at you with two ping-pong ball-like eyes; once it makes eye contact, it smiles or frowns based on its interpretation of your mood.

"I found it fascinating and creepy at the same time. There is something deeply unnerving about a machine looking at you. If the researchers replaced the ping ball eyes with realistic glass eyes, I'm sure it would send shivers down your spine.

"The idea that a machine can approach humans may be deeply repugnant. Perhaps we do not want to develop thinking machines that can look you in the eye."

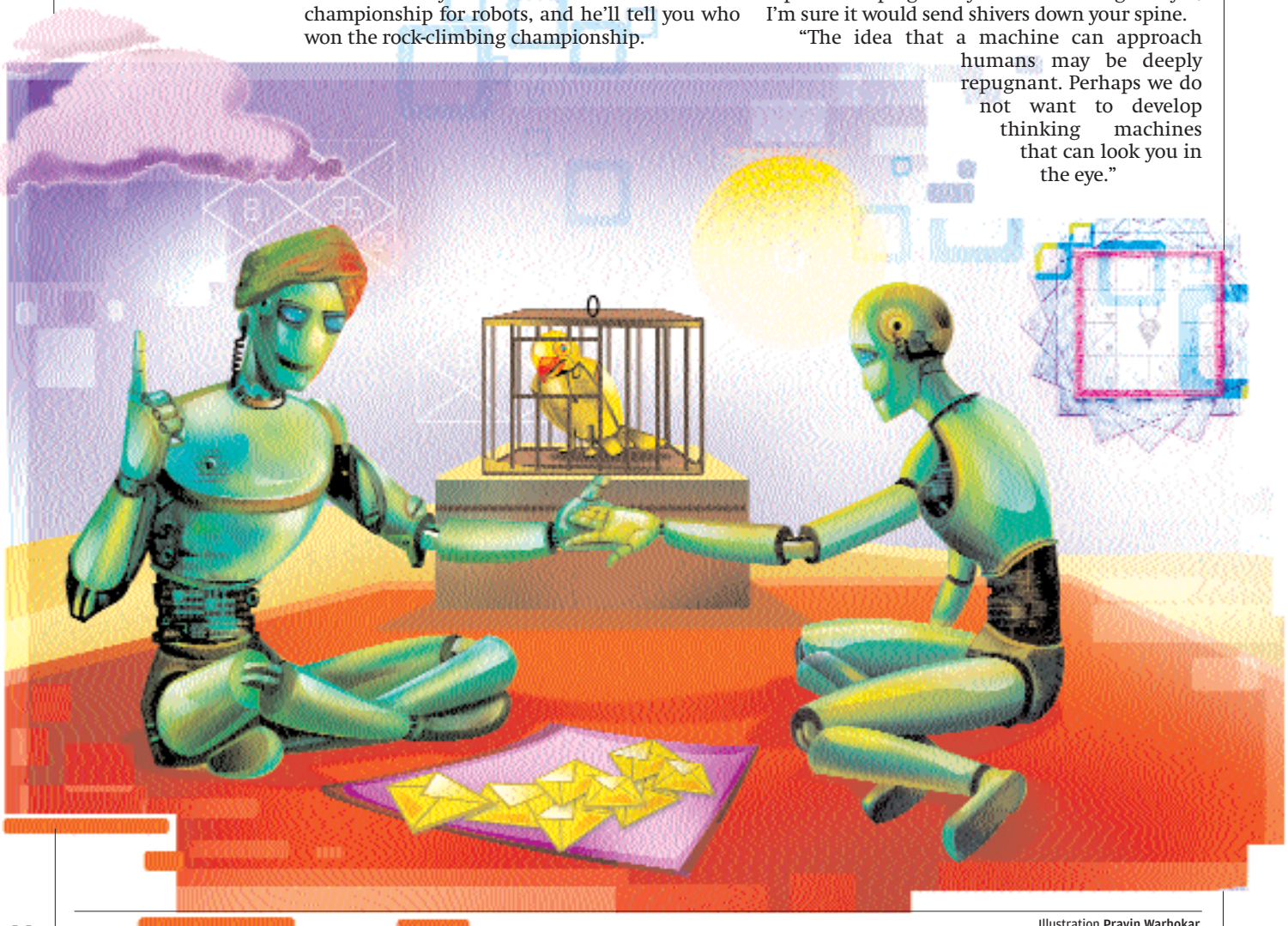


Illustration **Pravin Warhokar**

That's John Dvorak's 2001 account of his experience with a robot that's just barely intelligent. Dvorak is no newcomer to intelligent creations—he's a world-renowned technology author and columnist. But he already sounds ancient, almost quaint. Six years on, and people are talking very differently, as you'll see.

All Too Human

Take a look at **http://snipurl.com/digrob2**. "EveR-2 Muse," designed by the Korea Institute of Industrial Technology, has been called the world's first entertainer robot. She lip-syncs, does dance moves, and such; and since people don't like seeing hideous steel structures doing these things, EveR-2 Muse has a realistic body—artificial skin, hair, a pair of you-know-whats, and, yes, artificial eyes, of which we think a better job might have been done—but who are we to complain? Still, those eyes are horrifying, and one blogger says that "that glazed, nightmarish glare speaks for itself." We conclude that you probably wouldn't feel uncomfortable with this one looking you in the eye, but what if "she" had "realistic glass eyes"?

Now, take a look at the movies at **http://snipurl.com/digrob1**. WT-5 (Waseda Talker No. 5) doesn't quite look human, but from the videos, you'll gather, even though it makes Japanese sounds, that it's alarmingly advanced in terms of speech production. The last video is the most helpful, where the bot mimics a person saying something. Where have all the nice tin-can robots gone?

Then there's professor Ishiguro, who emphasises human-like appearance in his robots: head to **http://snipurl.com/digrob3**. The page says Repliee Q1expo interacted with people "with impersonating a TV interviewer," which we're taking to mean that the bot was presented as life-like. The first video clears things up, and all of them are worth watching. If only those body movements could have been more fluid! And then you realise you're already comparing the bot to a person, which is the ultimate in flattery as far as the professor is concerned. (Chuckle, chuckle: at the bottom of the page, there's mention of Ishiguro's writhing and someone else's greed.)

For a good listing of humanoid robots, visit **http://snipurl.com/digrob4**. They can do rather more than show off by climbing stairs—and that was just a couple of years ago. Which is precisely what makes us wonder what's round the corner—and even more, in fact, about the distant future. If this were a tabloid, we'd already have been screaming, "They're coming! They're coming!"

In Our Image

Sebastian Thrun, director of the Stanford Artificial Intelligence Lab, was in the news last year for "Stanley," his robotic car. It drove itself through about 130 miles in the Mojave desert to win the DARPA Grand Challenge for self-driven cars. He makes a point about the Roomba—the most well-known robotic vacuum cleaner—that spells out something fundamental: "I think the Roomba is a mix of curiosity and cutting-edge technology and actual utility. It's not the world's best vacuum cleaner, but it's incredibly cool to have a robot vacuum cleaner."

Another, obvious point in the case for humanoids is that they would be more readily accepted as companions and helpers. No-one wants to cuddle up with a twelve-legged, titanium box

Coolness is certainly a big driver when it comes to consumer robotics, but why this drive towards *humanoid* robots? It could well be a multiplication thing, as in coolness multiplied by human-like equals über-cool. It's cool to have a robotic vacuum cleaner, but it would be über-cool to have an android vacuum cleaner! Still, there are more reasons we can think of.

For one, they're cheap labour. A receptionist robot costs a lot right now to hire, but when they become commonplace, it really is as simple as that—cheap labour. Then there's the obedience factor—in fact, the word "robot" comes from something in the Czech language along the lines of "doing one's bidding." Who doesn't like to order people about? And who wants his orders to be turned down with "Nah... I don't think so!"?

Robots just *don't* say "Nah... I don't think so." You tell, they do.

In terms of following orders, robots do it with *precision*. You will not see a sloppy robot—and when we get to having them as household helpers, you aren't going to see water spilt on the floor after the dishes are done! It's this very precision that has given robots a bad name—a person who in all sincerity says the time is "2:52" is thought of as robot-like in a negative way. The "solution" could be to throw in some sloppiness into the robot's AI, but that's a subject of debate. Our point here is that going beyond orders being obeyed, we want them to be obeyed to perfection (in most cases!).





Some of the latest robotic creations are anything but made of tin, and sound anything but metallic. Pictured here are Repliee Q1expo (left) and EveR-2 Muse (above)

Another, obvious point for humanoids is that they would be more readily accepted as companions and helpers. No-one wants to cuddle up to a twelve-legged titanium box.

Some humanoids are designed for study purposes—WT-5, which we've mentioned, was developed to study how the human vocal system works, roughly speaking.

You could think of a whole lot of other motivational factors—their entertainment value, for example. (This might soon be gone as they become more commonplace, though.) But the ultimate motivation in the design of robots that look, walk, and talk like us could well be the collective "high" of having created something in our own image. Of having played God—literally.

Looking To Japan

So make no mistake about it: we're not divining, we aren't guessing. It's all in the news. (See box *They're Crazy!*) The wave of humanoid robots has already begun.

Japan is showing us the way when it comes to acceptance of robots in our daily lives. In that country, they're not viewed as potential monstrosities: rather, they're gentle, benign creatures. One reason cited by some is the Japanese (Shinto) religion, where every creature—including robots—have a "life force." There are accounts of how robotic pets reduce stress and make life nicer for old folks whose children don't visit them often—in one old-age home, two robotic seals function as pets for the residents, who are delighted to stroke them and feel them flapping their flippers. "Old fogies," you might say. Or, "Why not just give them a dog?" We're wondering about the dog too, but the point is that the Japanese really seem to more readily assign a "human" status to "dumb, mechanical creatures."

The point also is, if it can happen in Japan, it can't just be explained away by Shintoism; it will happen everywhere, sooner or later. And not just robotic seals and dogs: as the whole humanoid thing catches on, who's to say that old (or young) people, for instance, won't accept robots as "real"?

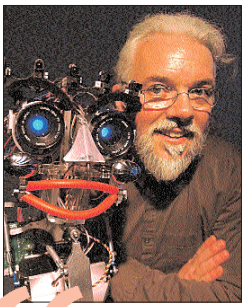
What They're Saying

Hans Moravec, old-time researcher at Carnegie-Mellon University: "The effect of robots clearly has implications for the economy. Social security will have to be expanded, introduced at lower and lower ages, till essentially everyone lives on social security. The taxes will be paid by fully-automated businesses run by robots. And human beings will have to deal with the problem of excess leisure." (What would you do when there's nothing to do?)

Ron Arkin, roboticist at the Robotics and Artificial Intelligence Group at LAAS/CNRS in France: "I would expect people to form psychological attachments with these artefacts. We already do so more or less: to cars to video games to AIBOs. ...Would you want your daughter to marry a robot? What would the church think of such unions?" (This one might sound ridiculous, but think about *your* psychological attachments to artefacts.)

Daniela Cerqui, social and cultural anthropologist at the Institute of Sociology and Anthropology of the University of Lausanne: "I am afraid that the long term future we are building will have no space left for human beings." (To do anything useful, we presume.)

We're not saying the views above are indicative of Truth. But they highlight what the thinkers are thinking right now: that it's a foregone conclusion that the bots will be amongst us—in growing numbers—now on.



"They don't have as much intelligence as bacteria and they never will"

Noel Sharkey
Professor
Department of Computer Science
University of Sheffield

What's To Come?

Honestly, we haven't the foggiest. But let's take pot-shots at possibilities.

What gets some people's brows all sweaty is questions like "What if they became more intelligent than us?" and "Will they take over?" (That, by the way, has been asked by people about 16 billion times, which is 2.46 times per person)

Turns out, in 2001, someone of no less stature than that of Stephen Hawking recommended that humans change their DNA through genetic modification to stop intelligent machines from "taking over the world." What can we say?

Not much, but Prof Noel Sharkey has license to say something: that contrary to popular belief, robots have no chance of taking over the world. "They don't have as much intelligence as bacteria and they never will." Sharkey is the man behind Robot Wars (*see Robo Sapiens*, *Digit*, January 2004), where evolutionary robots were divided into prey and predators, and fought it out. Would Sharkey and Hawking please fight it out and tell us something we can believe!

Perhaps we *should* believe someone with a name like Marshall Brain. He happens to be the founder of **howstuffworks.com**, and at the much-read **http://marshallbrain.com/robotic-nation.htm**, Brain envisions a situation where robots will have all the jobs.

Actually, all talk of "robots on the rise" is complementary to talk about cyborgs and how we will turn cyborg—there's the possibility of a mixed race on the planet, each individual of either machine or human origin, and with sharply varying degrees of intelligence and physical capabilities. Lending credence to this idea is Ray Kurzweil, inventor and futurist: "By the time we succeed in building (intelligent) machines, we will have become part machine ourselves."

Kevin Warwick, the world's first self-proclaimed cyborg, who wrote *Human-Machine Convergence* for *Digit* in June 2005, says about the people who don't "upgrade": "If they don't, they could become some sort of subspecies."

The "rise of the robots" doesn't need any spectacular advances in AI, for two reasons: first, AI as it stands today aims at imparting human-like intelligence to machines, and the new machines may not need such intelligence—they could well develop a different kind. And second, even if you do take the stance that our machines are to mimic us, the sheer numbers overwhelm. Take common sense, for example, which is notoriously difficult for a machine to have: with computational power increasing exponentially—and the possibility of quantum computers (*see The Quest For Quantumland*, *Digit*, November 2006)—common sense could be hard-coded into artificial brains by brute-force methods, without our even having to understand our own common sense!

As you let your imagination loose and try and imagine the future—which is all we can encourage you to do—try and remember that humanness is overrated. It's gotten down to that.■

ram_mohan@thinkdigit.com

They're Crazy!

According to a recent study by the British government, robots could one day demand the same "citizen's rights" as humans. If granted, countries would be obliged to provide social benefits—including housing. Don't laugh at us—that's what the officiously-called "study" says!

A "monumental shift" could occur if robots develop to the point where they can reproduce, improve themselves or develop artificial intelligence; that at some point in the next 20 to 50 years, robots could be granted rights. If this happened, the bots would have responsibilities such as voting, the paying of taxes, and serving in the military.

These predictions are contained in papers that look at projected developments over the next 50 years.

If you're thinking we made this up, take a look at **http://news.bbc.co.uk/2/hi/technology/6200005.stm.**



January 2007

Bose QC3

Michael Browne

I thought Christmas was over... until a colleague dropped this set of headphones in my lap. Would I like to test them, were they *30 Days With* material? So started my tryst with a very appealing product from a line that is much to my liking.

Day 1

Slipped them on for a couple of hours on my rickety office machine. The Bose Quiet Comfort 3 does seem to perk up a few of my MP3s. For an on-ear design these are by far the most comfortable headphones I've used, even over prolonged periods. There isn't a volume control on the cans though.

Day 2

The Quiet Comfort 3 has a tiny Li-ion battery rated at 200 mAh, which is good for around 18 hours. The headset doesn't operate without the battery, however, which means the active noise cancellation is always on. It drowns out general ambient sound. Louder sounds (like someone speaking right next to you) are audible.

Day 4

Its quality, as far as music goes, is in a word—Superb! The soft foam pads pamper your ears while your eardrums soak up this aural treat. I've listened to circumaural headsets that are better, but these are the best-sounding on-ear type headsets that have come my way.

Day 6

The little red power indicator keeps flashing... time for a battery charge. Bose provides an extra battery; they also provide an assortment of plugs for different power sockets. There's also a neat-looking dock for the battery. I lamented the lack of a USB charger, but hey, you can't have everything! Charging took hardly an hour.

Day 10

Time to hook this baby up to my music system. I used the bundled ¼-inch gold-plated adapter. After firing up a few CDs—Eagles, UB-40, and Joshua Kadison—I'm impressed. So the Quiet Comfort 3 passes both CD and MP3 music tests...no problemo! It distorts at high volumes, though you'd have to be deaf or a reviewer to even try pumping the volume up so high!

Day 18

With classical music, you have the entire spectrum of both volume and frequencies. My better half used the QC3s today. She proclaimed that they were "just lovely" (because of their size, I presume). I told her the price—Rs 18,500. "So what, *el cheapo*...maybe for my birthday?" Note to self: no more taking products home!

Day 22

I fired up the QC3 on my X-Fi Platinum again. As I'd expected, the Bose excelled. The bass is well-defined. Treble like guitar and sax notes are right on. Vocals—Indi-pop or English—are really good. Next I tried the one original HD-DVD I have. Once again, the QC 3 delivered. Absolutely no distortion even after hours of listening—not that I expected any! The Bose QC3 does qualify as audiophile equipment—performance-wise, that is.

Day 27

It's back to office for the Bose Quiet Comfort 3 Acoustic Noise Canceling Headphones... long name, huh? Definitely not for us regular mortals, and the steep price should scare away most audiophiles as well! There are cheaper alternatives out there that perform better. However, portability is a strong point, as is the active noise cancellation (a must for portables in my opinion). If you're as rich as I want to be someday... flaunt them, and remember to carry the bill with you!

michael_browne@thinkdigit.com

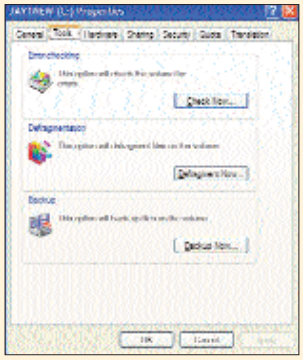
TAKE a CRACK

THIS MONTH'S CHALLENGE

Try and override the three default drive maintenance tools—including the defragmenter—and set third-party apps for the job!

Send in your solution with the subject "Take a Crack", and your postal address, to **takeacrack@thinkdigit.com**

Change The Default Drive Tools In XP



LAST MONTH'S CHALLENGE



Take a Crack and win

Google Analytics

by Mary E. Tyler and Jerri L. Ledford

Published by

WILEY-INDIA

LAST MONTH'S WINNER

There was no winner! Try again!

Rules and Regulations

- Readers are requested to send in their answers by the 15th of the month of publication.
- Employees of Jasubhai Digital Media and their relatives are not permitted to participate in this contest.
- Readers are encouraged to send their replies by e-mail. Jasubhai Digital Media will not entertain any unsolicited communication.
- Jasubhai Digital Media is not responsible for any damage to your system that may be caused while you are trying to solve the problem.

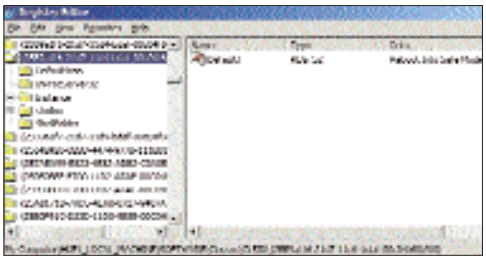
Add "Reboot Into Safe Mode" To Your Start Menu

Last month's solution

The question posed last month seems to have been too tough—no-one could Take a Crack at it! We provide the solution here.

You require a free utility known as BootSafe to achieve add "Reboot into Safe Mode" to your Start Menu. BootSafe can be downloaded from **www.superadblocker.com/downloadfile.html?productid=BOOTSAFE**. Copy this to a folder on your hard drive. A good place to put this file into is the \Windows\system32 folder.

Open the Registry Editor. Navigate to: **HKEY_CLASSES_ROOT\CLSID\{2559a1f6-21d7-11d4-bdaf-00c04f60b9f0}**. Double-click "Default" in the right pane and set the value to "Reboot Into Safe Mode". Under this key, create a sub-key called "DefaultIcon" and set its default value to "**C:\WINDOWS\system32\safeboot.exe**". Create another sub-key "**InProcServer32**", change the default value to "**%SystemRoot%\system32\shdocvw.dll**", create a String Value "ThreadingModel", and name it "Apartment".



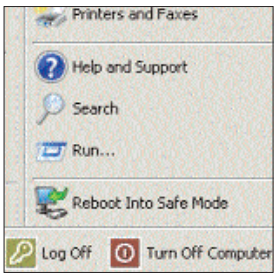
Modify the registry to create the button

Next create a sub-key "Instance", and create a String named "CLSID" with the value "**{3f454f0e-42ae-4d7c-8ea3-328250d6e272}**". Under this, create another sub-key "InitPropertyBag", and in the right pane, create Strings "CLSID" with value "**{13709620-C279-11CE-A49E-444553540000}**", "Command" with value "Reboot Into Safe Mode", "method" with value "ShellExecute", and "Param1" with value "**C:\WINDOWS\system32\bootsafe.exe**".



BootSafe lets you boot into the Safe Mode of your choice

Restart the computer and you will find there's a new button called "Reboot Into Safe Mode" just above "Log Off" and "Shut Down" in the Start Menu. Click on this button once and select the type of Safe Mode you wish to boot into—Minimal, Networking (typical), or Repair, then click the Reboot button.



Voila! **A Start Menu shortcut to reboot into Safe Mode**

Once you have booted into Safe Mode, you can perform any actions needed, such as scanning for viruses, spyware, adware, malware, or repairing a system component.

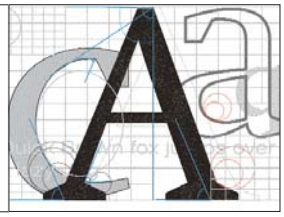
When you have completed your tasks, click again on "Reboot Into Safe Mode" on the Start Menu. Select the Normal Restart option and click Reboot. XP will reboot in normal mode. ■



72 BurNer Kings



86 Surfing The Airwaves



88 Know more

Under The Radar

There's a lot of useful stuff out there—both tech and non-tech—that can make the technologically-enabled life easier. You just have to go hunting

Agent 001

We usually spend our time at *Digit* reviewing all the latest techno-wizardry, but in all this mania, we seem to have lost track of little, unappreciated things that can be so useful sometimes. So I heaved off to Mumbai's Lamington Road, and came back with these.

USB VACUUM CLEANER

Where From: Literally anywhere. I got it off a street vendor, and found it on nearly every tech-shelf I saw.
How much: Rs 120 (may vary across vendors)

Why

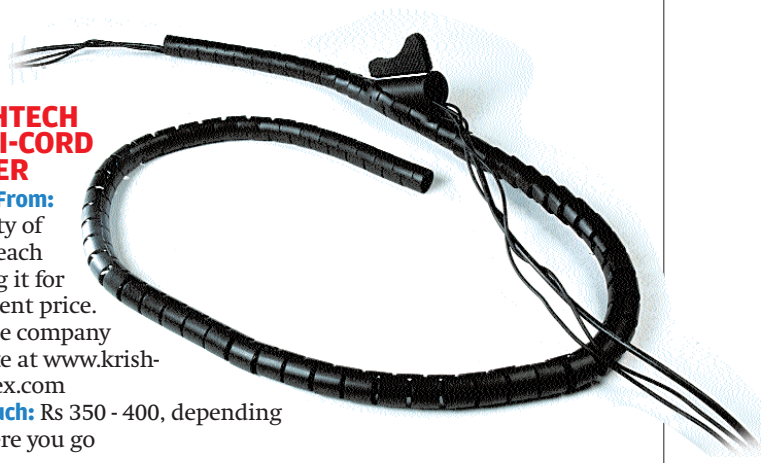
The vacuum cleaner comes with two attachments—a brush and a rubber tube for cleaning between keyboard keys—and a little LED to illuminate the area you're vacuuming (if you're cleaning in the dark, for whatever reason). There's also a button to switch to "high power" mode for extra suction. But don't expect a Hoover in this one—it won't remove days' worth of encrusted grime from your keyboard, but it does suck up the "invisible" dust that you don't notice till it accumulates and becomes visible. The high-power mode is a little better.

And really, you know you want your co-workers staring at you during your morning cleaning ritual.



KRISHTECH MULTI-CORD BINDER

Where From: A variety of shops, each offering it for a different price. Visit the company Web site at www.krish-naimpex.com
How Much: Rs 350 - 400, depending on where you go



Why

While the price is a wee bit steep, this is an incredibly useful thing to reduce the clutter of cables behind your PC. The design is pretty ingenious too—put your wires into the clamp that comes with it and run it through the tubing that comes with it. The model here will hold all the cables you'll find behind a typical PC; you can even get a thinner version for Rs 200 that will hold all but your power cables.

COMFORTPAD GEL-FILLED MOUSEPAD

Where From: Any street vendor
How Much: Rs 20



Why

Everyone I know takes the "optical mice don't need mousepads" adage too seriously. The fact is that your hand needs a mousepad too—to shield it from your hard desk. The ComfortPad takes some fidgeting to get used to, but the unnamed goo in this thing does provide a good cushion for your wrist, especially during periods of extended mousing. The surface material works well for both optical and ball mice, and lends itself well to some casual gaming too.

CELL-PHONE CHARGER KIT

Where From Any street vendor
How Much Rs 200

Why

Recent experiences have taught me the importance of having a backup charger for my cell phone (which this kit comes with), but the best feature here is the emergency charger—pop in four AAA-sized batteries and you can use it to charge your phone on the go. Don't expect it to replace your regular charger, though—its purpose is to give you enough juice for a few critical phone calls before your phone's battery croaks. The original charger for your phone will cost you as much as Rs 400, and at half the price, this gives you more even if it doesn't last as long.





USB TO SVGA ADAPTER

Where From Adline Systems, Karol Bagh, New Delhi (www.adlinesystems.com)
How Much Rs 4,000 + taxes

Why

You can still have yourself a dual-monitor setup if you're just using your onboard graphics card with this tool—what's more, you can do it with just about any PC with a USB 2.0 port. It comes with its own drivers, and supports resolutions up to 1024x768 at 16-bit colour. Don't expect a graphics accelerator, though—this is strictly business. So if you've read *The More The Merrier* in our last issue and feel left out, fret no more!

ATEK TOTE-REMOTE

Where From J. S. Equipments, Mumbai
How Much Rs 4,200

Why

Ridiculous name aside, if your job entails making loads of presentations on a regular basis, then this wireless PowerPoint remote should prove more than handy. It's plug-and-play and features all the controls you need for your PowerPoint presentations, including black screen and white screen, and it works within a range of 40 feet. It's even got a laser pointer built in, complete with a disable function to prevent you damaging your eye.



Bazaar

We test the latest hardware and software products available in the market

Lenovo 3000 Y500

Feature-rich, priced just right

This time we got the chance to test the Lenovo model that played the role of *computerji* in the popular quiz show *Kaun Banega Crorepati*.

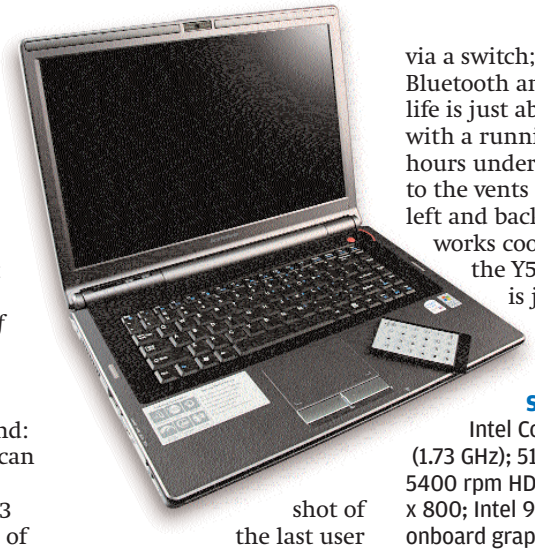
Sporting a silver-metallic finish, the unit is quite sturdy. Weight is 2 kg. Ergonomic keys require light strokes and are placed close together, while the generously-sized touchpad feels smooth to work with, and has ample space for wrist support around it.

The WXGA display provides excellent picture quality; viewability from wide angles isn't a problem. Powered by a Core Duo processor, it doesn't lack in the performance department either, churning out 38 fps at 1024 x 768 in *Call of Duty*. It encoded our test DVD to AVI video in 182 seconds, which is good.

RATINGS	
Performance	★★★★
Features	★★★★
Value for Money	★★★½
Overall	★★★★

The feature set is sound: the buttons on the front can be used for battery management, there's a 1.3 megapixel camera on top of the display, and a media centre called "Shuttle Center" which can also be controlled using the bundled remote.

The face verification feature is also quite cool: it can distinguish faces accurately, and scans your face to log you into Windows. It even logs a cam-



shot of the last user who failed the verification process, though it should be noted that the verification process can be bypassed altogether just by closing the window—no real security here.

The Dolby-certified surround sound subsystem situated on the front of the unit can be turned on or off via a switch; ditto the Bluetooth and Wi-Fi. Battery life is just about average with a running time of 2:33 hours under stress. Thanks to the vents provided on the left and back, the Lenovo works cool. The price of the Y5000—Rs 56,000—is just right, we think, for its configuration.

Specifications

Intel Core Duo T2250 (1.73 GHz); 512 MB RAM; 80 GB 5400 rpm HDD; 15.4-inch 1280 x 800; Intel 945GM chipset; onboard graphics; slot-in DVD-RW; Intel 802.11a/b/g; Bluetooth, 10/100 Ethernet; FireWire; 1.3 MP camera; TV-Tuner, 6c Li-ion batteries; Windows XP Home

Contact: **Lenovo India Pvt Ltd**
Phone: **080-22108412**
E-mail: **pc@in.lenovo.com**
Web site: **www.lenovo.com**
Price: **Rs. 56,000**

Mitashi MPF 1001

Something for St. Valentine's Day

Here's a gift idea for the 14th: the MPF 1001 comes with two headphone jacks! The body is made of jet-black, non-reflective material, which seems to be scratch-resistant.

A 2-colour OLED display provides basic navigational indications, and displays MP3 ID3 tags. OLEDs are more energy-efficient as compared to LCDs, but the low battery life of the player hardly reflects this. The Li-ion battery can be recharged via USB, and Mitashi also provides a 2-pin power adapter.

Button placement is not intuitive. There is a centre button and a button each in the four directions. However, the centre button is just for playback (instead of the usual Select), while the top "Menu" button is for "Select". The one at the bottom brings up the volume control during playback. The left and right buttons are for moving forward and backward, and also up and down. All the buttons are somewhat hard to press, and are sometimes sluggish or even unresponsive.

The MPF 1001 recognises MP3 and WMA, but we would have liked support for formats such as AAC. Performance-wise, the sound lacks punch: while the treble is passable, the bass is seriously deficient. The bundled earphones don't help either. On top of that, they aren't comfortable, and we can't recommend they be worn for more than a couple of hours.

Storage capacity is 1 GB. The device supports two storage modes: Media Class Storage, in which the player is recognised as a removable drive, and Media Transfer Mode, which allows you to sync the device using WMP10 to transfer MP3s to the player.

Despite support for USB 2.0, data transfer is quite slow: it took us two minutes to transfer 100 MB. Other features include a car stereo adapter, FM radio, and voice recording.

RATINGS	
Performance	★★½
Features	★★★½
Ease of use	★★
Value for Money	★★★
Over all	★★★



Specifications

1 GB; audio formats: MP3, WMA; 2-colour OLED; dual-earphone sockets; earphones; car stereo adapter; USB 2.0

Contact: **Mitashi Edutainment Pvt Ltd**
Phone: **022-5006661**
E-mail: **contact@mitashi.com**
Web site: **www.mitashi.com**
Price: **Rs. 3,690**



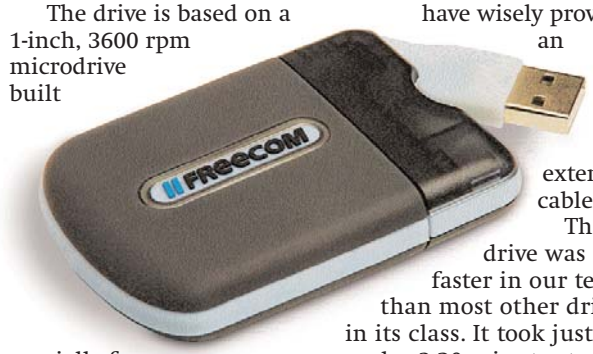
Freecom Tough Drive XXS 6 GB

Xtra Xtra Small!

Talk about physical protection for your data—the Freecom Tough Drive XXS is about just that. The manufacturer says it has the ability to withstand shocks and bumps, which is something we haven't seen on any other drives in its product category. The manufacturers have drop-tested it to two metres and state that it can withstand up to 200G shock while operating. The credit goes to its tough exterior, made of shock-absorbing, soft silicone, which also gives it a rubberised look and a solid feel, and also to an internal anti-shock mechanism that insulates the hard drive from shock.

Aesthetics is not compromised, as you can see alongside. Not much larger than a matchbox, this featherweight (56 g) drive is slim enough to slip into your pocket.

The drive is based on a 1-inch, 3600 rpm microdrive built specially for mobile devices. 6 GB (5.7 GB real capacity) means oodles of free space for most practical purposes.



When the small, retractable USB 2.0 plug (which is attached to a small cable) is connected, the device is instantly recognised by Windows XP, and a little blue LED in the plug starts glowing—and flashes as data is transferred. The retractable cable is very short—hardly an inch long—and Freecom have wisely provided an extension cable.

The drive was faster in our tests than most other drives in its class. It took just under 2:30 minutes to transfer 1 GB of assorted files and just over 2 minutes for sequential files. The XXS is extremely silent, too. The bundled Freecom Personal Media Suite can compress and encrypt your files. You can also synchronise the contents of the your hard drive with the XXS.

We think this drive is everything a portable drive should be. With 4 GB flash drives available for around Rs 2,000, the Rs 10,500 price tag certainly isn't extra-small!

RATINGS	
Performance	★★★★
Features	★★★★
Ease of use	★★★★
Value for Money	★★½
Over all	★★★½

Specifications

1 GB; 1-inch microdrive; 3600 rpm; buffer: 128 KB; average latency: 8.3 ms; dimensions: 75 x 53 x 15; weight: 56 g; interface: USB 2.0; USB extension cable

Contact: **: J. S. Equipments**
Phone: **022-23810713**
E-mail: **jse@vsnl.com**
Web site: **www.freecom.com**
Price: **Rs. 10,500**

Gigabyte Wireless Presentation Kit

Present in style!

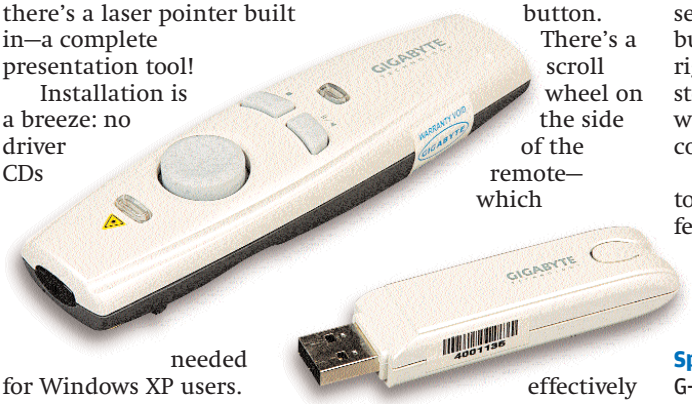
The GM-FPB is Gigabyte's gift to all those lucky enough to be called upon to give e-presentations. This kit consists of a pen-drive-looking unit that's the receiver and the actual remote. They're both the same colour tone as well, and both units are built well. Best of all, the kit is extremely compact.

The remote is contoured well, making for a comfortable grip—a good thing, considering its intended usage patterns. The receiver doubles up as a pen drive. We received the 128 MB version and there's a 256 MB one as well.

Gigabyte opted for wireless (as opposed to the regular IR configurations), so orientation and direction will never limit usage. In case you want to play tag, there's a laser pointer built in—a complete presentation tool!

Installation is a breeze: no driver CDs needed for Windows XP users. Just plug in the receiver into a USB port and you're good to go.

The GM-FPB toggles between presentation and media player mode. While presenting, you have full control over the mouse control button. This button is like the joypad button on many cell phones. Tactile feel is good, and the pointer accelerates proportional to the force exerted while pressing the button.



There's a scroll wheel on the side of the remote—which effectively replaces the keyboard and mouse combination for browsing on your PC.

Switching to media player mode by pressing the Mode button for two seconds disables the mouse button, and your left and right click buttons become stop and play buttons! The wheel becomes a volume controller. Slick!

Signal range is good, too. We tested it up to 20 feet, which is around the maximum distance a presenter would stand from a screen anyway.

RATINGS	
Performance	★★★★
Features	★★★★
Build Quality	★★★★
Value for Money	★★★½
Over all	★★★★

Specifications

G-MAX flex pointer, USB 1.1, 64 ID Design, 128 MB in-built flash memory, 433.92 MHz frequency range, compatible with Windows 9x/ME/XP, Mac OS 10.0

Contact: **Gigabyte Tech India Ltd**
Phone: **022-26526696**
E-mail: **sales@gigabyte.in**
Web site: **www.gigabyte.in**
Price: **Rs. 2,990**

Tech-Com DSC-520 5.0 MP

An unexpected performer

The spec-sheet for this camera is pretty much standard for most compact digicams—3x optical zoom, coupled with 4x digital zoom. (The latter is useless in our opinion, but it's an important on-paper spec to some.) The camera's built



rather well—nearly all Tech-Com digital cameras we've tested are. It feels solid to hold as well.

You just can't go wrong with black and silver as a colour combination, and the DSC-520, while being far from a stunner, does look nice with an all-black face and rear and side trim silver all-round. The body doesn't pick up fingerprints—very nice again.

Button ergonomics are good. The shoot button has a distinctive half-press for auto-focus. As opposed to some cameras we've tested, here you can actually tell by the tactile feedback that the camera is auto-focusing, without having to look at any indicators. Incidentally, there's no viewfinder: you'll have to manage with the 2-inch, 1,15,000 pixel LCD—which does get grainy, especially in dimly-lit conditions, and at the end of the lens zoom. The menu layout is pretty simple—all the options are accessible under a single menu. With four white balance modes and manual ISO ratings from 80 to 400, the Tech-Com DSC-520 is definitely not meant for a lot of indoor shooting, especially in areas where there isn't sufficient lighting.

As expected, photo quality outdoors was good, except at full optical zoom (3x) where some slight graininess does creep in. Indoors, you'll be using a flash... a lot. The flash is good for around 9 feet, after which it loses effectiveness altogether. Indoor shots are decent quality, but the noise is noticeable. At 640 x 480 @ 15 fps, this digicam is also a decent video recorder.

At Rs 6,500, the Tech-Com DSC-520 is decent value for money, and for newbies making a foray into digital imaging, a good buy.

RATINGS	
Performance	★★★
Features	★★★
Build Quality	★★★½
Value for Money	★★★½
Over all	★★★½

Specifications

5 megapixel CCD sensor; 3x optical zoom; 4x digital zoom; 2-inch LCD viewfinder; ISO manual 80-400 and auto; self-timer 2/10 sec; AA batteries

Contact: **Shree Sagarmatha Dist. Pvt Ltd**
Phone: **022-23065114 / 23200032**
E-mail: **techcom@airtelbroadband.in**
Website: **www.techcomindia.com**
Price: **Rs. 6,500**

Access Digital Photo Frame

Frame From The Future



Here's a unique way to, well, frame your memories. The Access Digital Photo Frame has the ability to store images and display them on its 7-inch frame, transferred from your PC or digicam via USB or memory card. Remote-controlled, it looks just like your average photo frame.

It is supported by a desk stand, but can also be hung on a wall. But the frame can only be placed horizontally, requiring you to rotate your portrait-style images before transferring them to the device.

In addition to image slideshows, it also supports MP3 and video. Larger Images larger are automatically resized.

Niggles: the hard buttons on the remote, and the lack of crispness in darker images.

RATINGS	
Performance	★★★
Features	★★★½
Ease of use	★★★½
Value for Money	★★½
Over all	★★★

Specifications

7-inch 480 x 234 display; inbuilt stereo output; USB 1.0/2.0; CF card slot; memory card slot (MS, SD, MMC XD)

Contact: **ACCESS Co. Ltd**
Phone: **022-23840789**
E-mail: **cshah@bom8.vsnl.net.in**
Price: **Rs. 10,500**

World Travel Products Podera Launch USB 2.0 4-port hub

Standard, Yet Pricey

Splashed in red, this USB hub offers four USB 2.0 ports. You connect it to a free USB port on your computer, and you get four ports—useful, in fact essential, if you have more USB devices than ports.



The Podera Launch weighs just 115 gm and is compact. The four ports are placed vertically in columns of two on opposite sides. The hub has a base, and the part above it can be turned for 30 degrees for easy accessibility to the ports.

Installing the hub is just a matter of plugging it in, and confirming the status light at the bottom is on; you can then get started using it. The status light could have been placed better for easier visibility, though.

At Rs 1,625, this one is a little expensive, considering most 4-port hubs can be had for less than Rs 1,000.

RATINGS	
Performance	★★★
Features	★★★
Ease of use	★★★½
Value for Money	★★½
Over all	★★★

Specifications

75 x 75 x 63 mm; 80 cm cable length; four USB 2.0 ports compatible with USB 1.1

Contact: **: J. S. Equipments**
Phone: **022-23810713**
E-mail: **jse@vsnl.com**
Price: **Rs. 1,625**

3ds Max 9

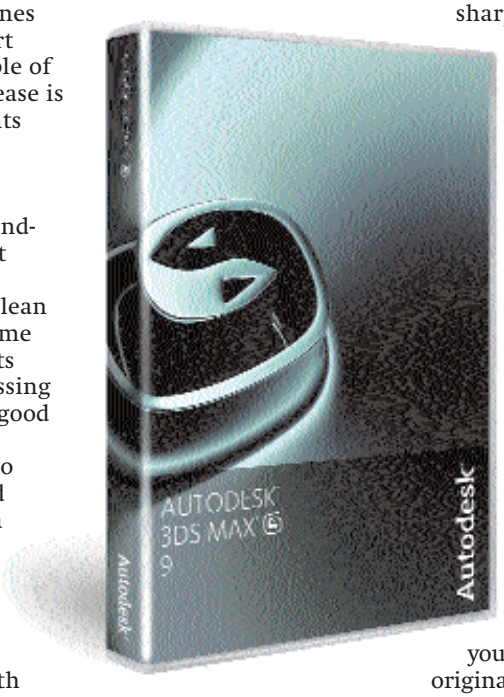
An unexpected performer

The biggest thing to happen to 3ds Max in this version—which is what makes it 9 and not 8.5—is that it's gone 64-bit. When you install it on Windows XP x64 Edition, it is capable of using up to 8 GB of RAM for its purposes, which means that you can work on more complex and resource-intensive scenes than ever before. Apart from this, plus a couple of new features, this release is all about improvements and enhancements.

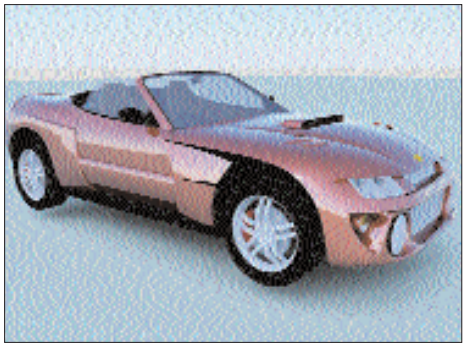
What's New

In keeping with the find-good-plugin-and-buy-it trend, Autodesk has integrated the ProBoolean tool in Max, to overcome the shortcomings of its own Boolean tool. Messing with Booleans isn't a good idea otherwise—the resultant mesh can too often end up with bad triangles and can be a nightmare to work with. Pro Booleans, however, are cleaner, and offer a lot more options, including the ease with which more objects can be added to the Boolean.

Taking a lesson from Maya's Trax editor, 3ds Max can now break animations into independent layers, bringing some sanity to complex animation. Using it is fairly easy—it's similar to the functionality that's already existed for Character Studio—if you're comfortable with that, there's practically no learning curve.



Another noteworthy addition is the new shaders for Mental Ray—the CarPaint shader, which creates realistic paint for your car models (in case you didn't guess), and the Arch shader, which simulates rounded edges on objects (notice that none of the edges around you in reality are perfectly sharp), so you don't have to fiddle with chamfering any more.



What's Better

The first noticeable improvement in Max is its ability to handle more polygon-heavy scenes without choking. Apart from that, some older features have been polished as well.

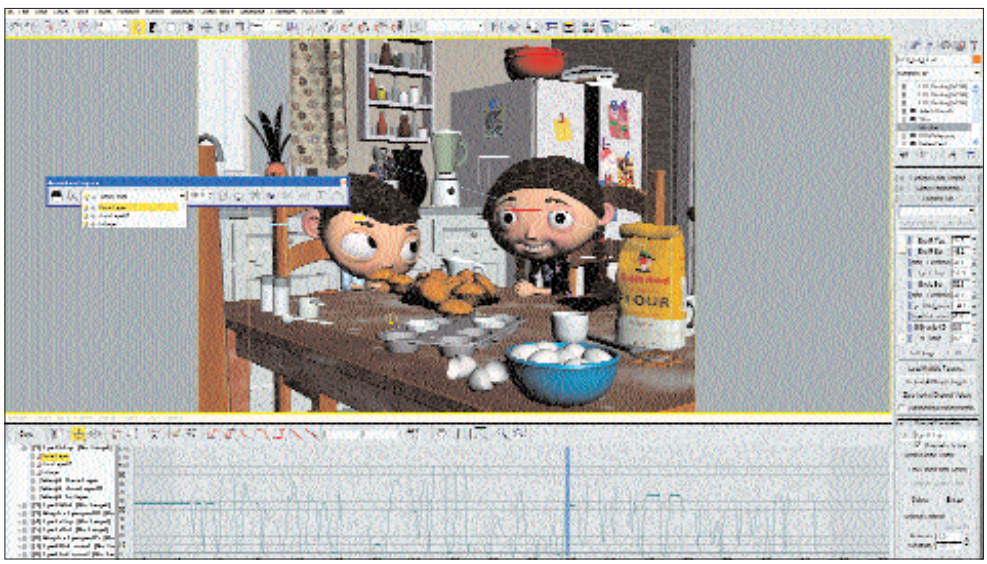
Working with Cloth is much easier now—tailoring clothes is much easier and more streamlined, and doesn't require you to keep editing the original surfaces to get right. The Cloth simulator calculates collisions much better, and the new Cling parameter lets you make them "sticky", much like wet clothes.

The Hair and Fur plugin, which demonstrated some instability in version 8, has been tweaked, and didn't crash the whole time we used it. It has also done away with the separate interface—which was, honestly, rather clunky—and now you can comb and style hair right in the viewport you're working in.

Other tweaks—including the optimisations to the FBX file format which enables Max and Maya to work together better—are relatively minor, and were expected anyway.

Final Notes

Using 3ds Max 9, it's hard to tell that it's a new version—there's nothing that comes off as special, at least on the surface. The improvements are there, no doubt, but the biggest thing that justifies this release is that it's available in a 64-bit version. If you're using Windows XP x64, and have more than 2 GB of RAM, you'll see the difference—if not, you're better off waiting for the next big release.



Animation Layers bring some sanity to complex scenes like these

RATINGS	
Performance	★★★★½
Features	★★★
Ease of Use	★★★★
Value for Money	★★★
Over all	★★★½

Contact: **Autodesk India Pvt. Ltd.**
Phone: **080–51199900**
E-mail: **selina.pinheiro@autodesk.com**
Website: **http://india.autodesk.com**
Price: **Rs 1,60,400**

External Portable Hard Drives

Lacie Design by F.A. Porsche 40 GB

⊞ Inexpensive, good performance
⊟ Looks bland

Contact Neoteric Infomatique Pvt Ltd
Phone 022-39828600
E-mail sales@neoteric.co.in
Price Rs 5,250



Internal PATA Hard Drive

Hitachi Deskstar HDS725050KLAT80

⊞ Speedy performance
⊟ Expensive

Contact Cyberstar Infocom Ltd
Phone 9341057327
E-mail lalit.sudrik@cyberstarindia.com
Price Rs 4,950

Linux

SuSE Linux Enterprise Desktop 10.1

⊞ Good software bundle
⊟ A little resource-heavy

Contact Novell India
Phone 022-28342244
E-mail apanjwani@novell.com
Price Rs 2,650

Internal DVD-Writers

Lite-On LH-20A1P

⊞ Fast performance, 20X writing to DVD+R and DVD-R
⊟ None in particular

Contact Mediatech India Distribution Pvt Ltd
Phone 022-26361111
E-mail digit@mediatechindia.com
Price Rs 2,095



Digital Cameras (High- End)

Sony Cybershot W50

⊞ Excellent image quality, vibrant colours
⊟ Trouble focusing in low light

Contact Macro Photo
Phone 022-22618639
E-mail macro.photo@gmail.com
Price Rs 15,000



Digital Cameras (Mid-range)

Sony Cybershot DSC L1

⊞ Great image quality
⊟ Only 4 MP CCD

Contact Macro Photo
Phone 022-22618639
E-mail macro.photo@gmail.com
Price Rs 9,000

Graphics Cards (High-End)

NVIDIA GeForce 8800 GTX

⊞ Blistering-fast
⊟ Runs slightly hot

Contact Rashi Peripherals Pvt Ltd
Phone 022-67090810
E-mail navinderc@rptechindia.com
Price Rs 41,000 + taxes



Graphics Cards (Mid-Range)

XFX PV-T73G-UDL7 (NVIDIA 7600GT)

⊞ Great bundle and performance
⊟ None in particular

Contact Rashi Peripherals Pvt Ltd
Phone 022-67090810
E-mail navinderc@rptechindia.com
Price Rs 10,500

The A-List

The best products tested so far in different hardware and software categories

Internal SATA Hard Drive

Seagate ST3750840AS

⊞ Huge 750 GB storage capacity
⊟ Expensive

Contact eSys Distribution Pvt Ltd
Phone 011-41811694
E-mail msinghal@esysmail.com
Price Rs 23,500

2.1 Speakers

Altec Lansing MX-5021

⊞ Great sound and build quality
⊟ Slightly expensive

Contact Rashi Peripherals
Phone 022- 55090909
E-mail divya@rptechindia.com
Price Rs 7,900



Hard drive-based MP3 Players

Apple iPod 80 GB



⊞ Large capacity; great fidelity
⊟ Expensive

Contact Apple Computer International Pvt Ltd
Phone 09886039424
E-mail avinash_ramchandra@asia.apple.com
Price Rs 23,900

LCD Monitors (17-inch)

Samsung SyncMaster 740N

⊞ Crisp images and vibrant colours
⊟ None in particular

Contact Samsung India Electronics Ltd
Phone 011-41511234
E-mail subrotah.b@samsung.com
Price Rs 11,500

Processors

Intel QX6700 Core 2 Extreme

⊞ Extreme performance
⊟ Expensive

Contact Intel Corporation
Phone 080-25075000
E-mail saranya.rustagi@intel.com
Price Rs 52,000

Projectors

Sharp XR-10S

⊞ Brilliant quality and performance
⊟ Bulky

Contact Sharp Business Systems Ltd
Phone 011-26431313
E-mail anilsodhani@sharp-oa.com
Price Rs 71,000



Wi-Fi Access Points

Linksys WAP54G

⊞ Great performance
⊟ None in particular

Contact Ingram Micro India Pvt Ltd
Phone 9323112279
E-mail sunil.z@ingrammicro.co.in
Price Rs 3,816



Wi-Fi Routers

ASUS WL-530G

⊞ Very fast; well-priced
⊟ None

Contact ASUSTeK Computer Inc
Phone 022-40058923
E-mail mamta_bhatia@asus.com
Price Rs 4,400

Motherboards

AMD AM2 Motherboards
ASUS Crosshair AM2

- ⊞ Great bundle and performance, accessories for the enthusiast
- ⊟ None

Contact ASUSTeK Computer Inc
Phone 022-40058888
E-mail media_india@asus.com
Price Rs 15,400



AMD 939 Motherboards
ASUS A8R MVP

- ⊞ Good performance
- ⊟ Skimpy bundle

Contact ASUSTeK Computer Inc
Phone 022-40058888
E-mail media_india@asus.com
Price Rs 8,700

Intel High-end Motherboards
Foxconn 975X7AB-8EKRS2H

- ⊞ Inexpensive, good performer
- ⊟ None in particular

Contact Mediatech India Distribution Pvt Ltd
Phone 022-26361111
E-mail info@mediatechindia.com
Price Rs 10,750



Intel Mid-range Motherboards
Gigabyte GA-965P-DQ6

- ⊞ Good build quality and performance
- ⊟ Expensive

Contact GIGABYTE Technology India Ltd
Phone 022-26526696
E-mail sales@gigabyte.in
Price Rs 16,000

Home Inkjet MFDs

HP Officejet 4355 All-in-One

- ⊞ Fax with handset, compact
- ⊟ Only sheetfed scanner

Contact HP India Sales Pvt Ltd
Phone 0124-2566111
E-mail ashwini-k.aggarwal@hp.com
Price Rs 6,499

Office Inkjet MFDs

HP Officejet 5610 All-in-One

- ⊞ Good performance
- ⊟ Expensive, No memory card support

Contact HP India Sales Pvt Ltd
Phone 0124-2566111
E-mail ashwini-k.aggarwal@hp.com
Price Rs 9,999



Keyboard-Mouse Combos

Logitech MX-3200 Laser

- ⊞ Extremely feature-rich
- ⊟ Slightly expensive

Contact Logitech Electronics India Pvt Ltd
Phone 022-26571160
E-mail response@logitech.com
Price Rs 6,995



Mono Laser Printers

HP LaserJet 1020

- ⊞ Good combination of speed, print quality and warranty
- ⊟ A bit slow in comparison to others

Contact Hewlett-Packard India Sales Pvt Ltd
Phone 0124-2566111
E-mail kakuni.mahto@hp.com
Price Rs 6,999

Feature-rich Cell Phones

Nokia N80

- ⊞ Brilliant screen; extremely feature-rich
- ⊟ Slightly bulky

Contact Nokia
Phone 0124-5199000
Website www.nokia.com
Price Rs 21,000



Budget Cell Phones

Nokia 6070

- ⊞ Great value for money
- ⊟ Poor-quality camera

Contact Nokia
Phone 0124-5199000
Website www.nokia.com
Price Rs 5,500

Flash Drives

Transcend JetFlash 150 1 GB

- ⊞ Fast
- ⊟ Poor package bundle

Contact Mediaman Infotech Pvt Ltd.
Phone 022-23828100
E-mail santosh@mediamangroup.com
Price Rs 1,500

Mice

Logitech MX Revolution

- ⊞ Has a flywheel
- ⊟ Expensive

Contact Logitech Electronic India Pvt Ltd
Phone 022-26571160
E-mail response@logitech.com
Price Rs 8,000



Mono Laser MFDs

Samsung SCX-4521F

- ⊞ Good performance and quality
- ⊟ Low input tray capacity

Contact Samsung India Electronics Pvt Ltd
Phone 011-26431313
E-mail vikram.negi@samsung.com
Price Rs 21,990



PC Webcams

Tech-Com SSD-641-MP

- ⊞ Good image quality, inexpensive
- ⊟ No software bundle, bad build quality

Contact Shree Sagarmatha Dist India Pvt Ltd
Phone 011-26428541
E-mail contact@techcomin-india.com
Price Rs 549

Thin And Light Laptops

Dell Inspiron 6400

- ⊞ Amazing performance
- ⊟ Looks gaudy

Contact Dell India Pvt. Ltd.
Phone 080-25068026
E-mail belgundi_indrajit@dell.com
Price Rs 64,000

Performance Laptops

Sony VAIO AR18GP

- ⊞ Mind boggling performance
- ⊟ Very expensive

Contact Sony India
Phone 022-28231558
E-mail sonyindia.care@ap.sony.com
Price Rs 1,99,900



Information Galore

Bored? "Go read a book," as they say. Or you could head to these sites and rekindle the sense of wonder you had as a kid

Prakash Ballakoor

www.nndb.com

If you want to know more about people in the global hall of fame, this is the place to go. The site lists the vital stats of famous people living and dead. What you see here goes beyond the usual stuff like date of birth, birthplace, religion, occupation, etc.; you also get info on sexual orientation, boy/girlfriends, and things like that. For example, a search for "Kate Moss" leads to a long write-up of her past and present deeds. Previous boyfriends—Johnny Depp, Jefferson Hack, Daniel Craig, and Pete Doherty, along with the time period of the relationship *and* the professions of the boyfriends in question are available! Other things that can you can find out are the companies she endorsed and negative things about the person. For Kate Moss: alcoholism, smoking, and cocaine.

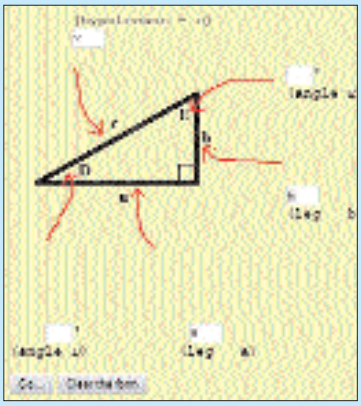


NNDB gives you information about anyone who's ever been famous

The site claims to have more than 20,000 profiles, which can be searched by last name, book titles, movie titles, and more. A section called "Dr. Sputnik's Society Pages" is a gossip column about famous personalities the world over.

www.webmath.com

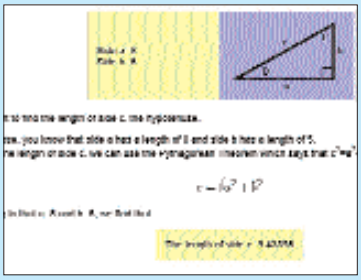
If you're stuck with a maths problem, **webmath.com** gives you a new lease of life. It solves problems for you while also teaching you the steps involved. The site is uncluttered, with a tabbed panel for easy navigation. For example, the home page allows you jump to quick help in calculus—derivatives, integrals, the quotient rule, and on and on. Unit conversions, complex numbers, data analysis, decimals, fractions, graphs, trigonometry, and many more quick-help links figure here.



Can't figure out the answer to a question? Just say "?"...

Say you have a simple problem: you want to find the length of the hypotenuse of a right triangle with sides measuring 5 and 8.

Adding a "? " in the text box for which you are trying to find the answer gives a detailed explanation of the steps involved, along with the solution, and if relevant, with the diagram too.



...and you'll have your answer

A tab called "Math for Everyone" is useful for maths problems that crop up often. For example, if the temperature is 18 degrees and the wind is blowing at 5 kmph, what will be the wind chill? As other examples, there's also "Unit Conversion" for conversions of length, mass, area, and volume, and "Personal Finance" to calculate interests and loan costs.

Then there is the section on algebra, where you can do things like simplifying expressions, addition and subtraction of expressions, and more. Solve simultaneous equations, quadratic equations, and deal with complex numbers!

Mathworld.wolfram.com, which we talked about some months ago, is more for the advanced maths buff. This site is for us common folk.

askville.amazon.com

Askville is something like Yahoo! Answers. It is a site where knowledge can be discussed and shared. You can ask any kind of question you want, such as "Can you buy light bulbs that never burn out?" A person in the community who shares the same interests and has knowledge on the topic can reply to the question. There can be up to five answers.



Health SciTech: the state of the art

How is Askville different from Yahoo! Answers? Well, you're awarded "experience points" based on how good your answers are. You gain or lose points depending on the quality of your answers. Voting on the quality of your answer happens after the question has been closed—seven days from the day of posting. The "Best Answer" earns 15 points, A "Great Answer" gets 10, a Wrong gets -5, and so on.

As you gain experience points, you move up levels; you earn "coin payouts" according to the level you're in. These can be redeemed at Amazon.com! If you've earned 305 experience points, for example, you stand at level 2, which entitles you 5 coin payouts.

A good deterrent system in place to prevent chats happening, and a terrific incentive to really share your knowledge! ■

prakash_ballakoor@thinkdigit.com

Tips & Tricks

SECRETS THAT KEEP YOU AHEAD IN THE RACE

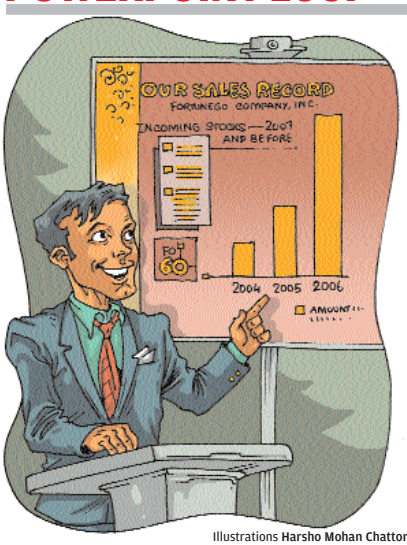
TIPS

Powerpoint 2007	63
Irfanview	65
Game Easter Eggs	70

30 MINUTES EXPERT

Simplyfying the Machine	66

POWERPOINT 2007



Illustrations **Harsho Mohan Chattoraj**

Those in marketing can't live without it, your friends often spam you with an offspring of it that contains a corny message, and most presentations depend on it. The beauty of PowerPoint is that it can be used for both personal and professional use, so if you have to present your ideas at a sales meet, your college, or want to irritate your friends with your philosophies on tree-hugging, keep reading...

The Return Of The Ribbon

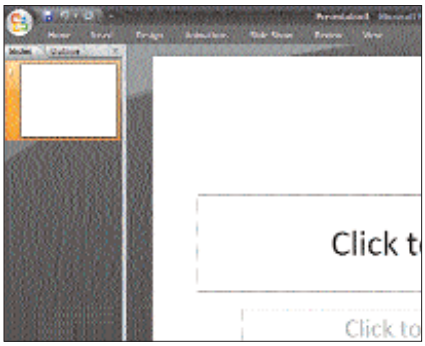
When you launch PowerPoint 2007, you'll be greeted with the now-famous Ribbon. We're not going to go in depth about it again, because we have already discussed it in previous *Tips & Tricks*. It should take no more than a few minutes for you to feel at home here, whether you've used other Office 2007 applications or not. You will see tabs such as Home, Insert, Design, Animations, Slide Show, Review, and View. From time to time you will see another tab, such as Format, appear when you perform actions in PowerPoint. These are called contextual tabs, which appear only when they are needed, or can be used. You should keep an eye open for them while working to find options easily.

More...

The Ribbon displays almost every setting and effect possible, but not all of them. Keep an eye out for the little downward facing arrows and "More Options..." buttons to see all the options available in every menu. This is especially important for transition effects and the like in PowerPoint. Also make sure to use the live preview feature that has made Office 2007 popular in the first place, so as to see what changes will occur before actually applying them. Just mouse over any option on the menu and you will see what that will do to your slide.

Minimise The Ribbon

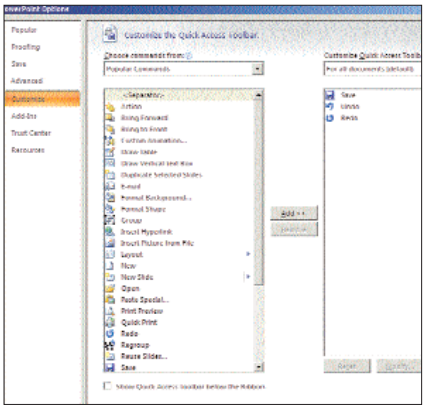
For those who want more Desktop area to work with, the ribbon might get in the way. This is especially true for those working on resolutions of 1024x768 or lower—Office 2007 seems to demand higher resolutions. In order to minimise the Ribbon, just right-click on any of the tab names and select "Minimize the Ribbon". Now you will be able to see all the names of the tabs, but not all the buttons. When you need to do some formatting or changes, just click on the name of a tab and all the buttons will return in all their glory. A single click means that the ribbon will auto-hide, and a double-click will keep it there permanently.



A minimised Ribon provides more space

Customise The Quick Access Bar

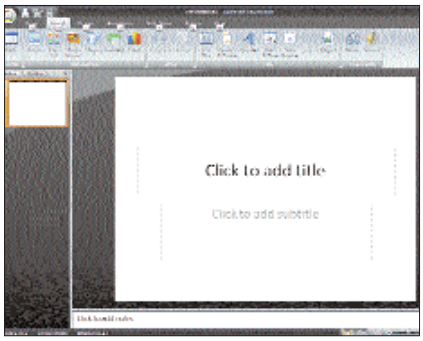
By default, next to the Office logo you find the Quick Access toolbar. By default this has a shortcut to Save, Undo, and Redo, which is a little pointless, because we're all quite adept at using the respective keyboard shortcuts. However, each of us may have some task that we perform regularly, which have difficult to remember keyboard shortcuts, or complicated ones requiring key combinations. In such cases, it would be wise to customise the Quick Access toolbar. Just right-click on the toolbar and select "Customise Quick Access Toolbar". Now choose the shortcuts you want to display on the Quick Access toolbar and click OK.



What do you want Quick Access to?

Easy Keyboard Shortcuts

For keyboard warriors, the most irritating thing about the new PowerPoint is the fact that a few of the shortcuts have changed. What most people don't realise is that Office 2007



Just press [Alt] to see keyboard shortcuts

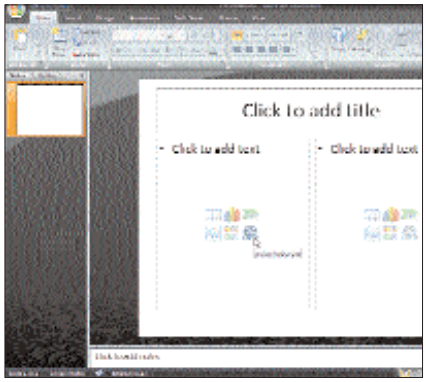
has shortcuts for every single menu item, which previous versions did not, and they're easy to identify as well, thanks to the little letters that pop up when you press [**Alt**]. It's advisable that you learn the keyboard shortcuts if you spend a significant amount of time using any Office application, and all you have to do is learn visually using [**Alt**] and the cues (called Key Tips) provided; it couldn't be simpler! Most of the older [**Ctrl**] + [some key] shortcuts are left unchanged, so you really will not find yourself too frustrated!

New Slide Layouts

By default, a lot of us just tend to add new slides in PowerPoint, without bothering about the slide layout. We then proceed to change the layout and other options. Instead of just clicking on the New Slide icon, click on the text below it and select the layout of the slide even before you add it. This saves you immense amounts of time and energy. For professionals at work who need to create presentations with hundreds of slides, this is a boon.

Content Placeholders

When you add a new slide that has blank content placeholders, you will see that PowerPoint 2007 offers little icons in the middle that act as shortcuts to particular types of content. These icons symbolise adding either a table, chart, SmartArt graphic, picture, Clip Art, media files, or plain text.

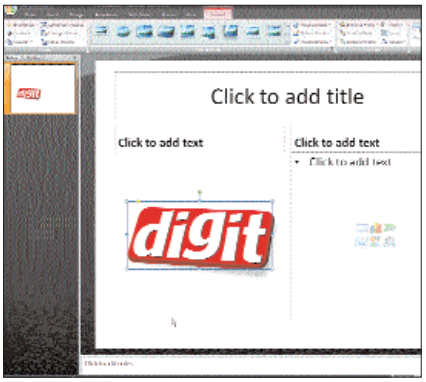


Adding content is easy—just click the placeholder

While creating slides, it's likely that you know what it is you're looking to include in a particular placeholder, so just click on the associated icon and you can browse through only those types of files on your computer. This, again, will save you hours and days of time in the long run.

Adding Effects

When you add a picture or element into a slide, it might appear too plain. To jazz it up a bit, take a look at the default picture styles available in PowerPoint 2007. One of these is guaranteed to attract your attention.



3D effects add to the look of your slides

Besides, if you find one that's close to what you want, but not quite it, you can always select it and play around with the 3D settings to modify the style to your liking. To do this, just go to **Format > Picture Effects > Presets > 3D Options** and then play around with all the different effects here to get the ideal 3D layout for your picture.

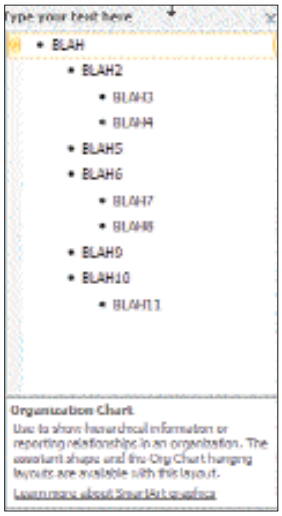
Do The Same For Text

As simple as the header above is, it's the truth. You can add all the same effects, if not more, to your text as you did for your pictures. Apart from the standard Word Art selections, you can also apply similar 3D effects to your text. If you insert the text in the same placeholder as the picture, you can apply 3D effects globally, to both the text and the picture at the same time. This works especially well when you want to add a caption to a picture that you have applied 3D effects to—you don't want your presentation looking lame with a cool 3D picture and a standard 2D caption, do you?

Convert to SmartArt

Instead of creating an organisation chart on your own, all you need to do is create a bulleted list, and then use the Convert to SmartArt button.

You will find this button under **Home > Convert to SmartArt**, or by using the keyboard shortcut [**Alt**] + [**H**] + [**M**]. You can also opt to convert the text you have typed into any sort of other SmartArt graphic as well.

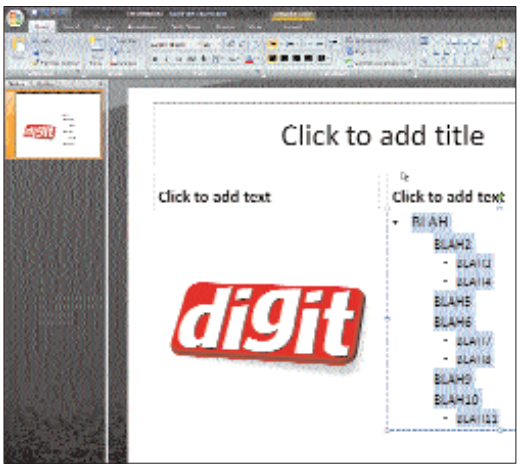


Convert a bulleted list to a SmartArt graphic easily

Animations

In order to animate your slides, you have the Animations tab, which puts everything in plain sight and within easy reach. From within the Animations tab, look for the Custom Animations button ([**Alt**] + [**A**] + [**C**]). This will open up a Custom Animations pane on the right, from where you can add animations to individual contents of your slide, instead of animating the entire slide itself. Once you have added your effects, you can just drag them about to reorder them, which makes storyboarding your slide very easy. Also remember to play your animation, using the little play button at the bottom of the Custom Animations pane, to check your progress.

In this same pane, you can set various parameters of the animation, including the event (time delay or on click), directions and speed. Every effect in that pane also has a drop-down arrow, which will reveal further options.



Each of the items can be animated individually

Advanced Timeline

While animating objects as described in the previous tip, you should use the Advanced Timeline option. Just right-click in the Custom Animation pane and select Show Advanced Timeline. Here you will get little orange boxes on the timeline that indicate the animation event and how long it takes. You can resize these boxes (prolong or shorten the animation) or move them about (fine tune the event orders). When making a presentation, sometimes the animation sequences that PowerPoint provides seem a little to scripted and artificial. It's advisable to use this Advanced Timeline to edit and change things a bit to bring a little "reality" into the animations. Like when causing an Organization Chart to fly-in, instead of having it all fly in one by one, or fly-in one branch at a time, sometimes a little haphazardness to the motion and sequence works better.

Effect Options

From the same Custom Animation pane, right-clicking and selecting Effect Options will bring up a dialog box that will let you tweak effect settings. Here you can add sounds to events and effects and modify the behaviour of an object after the animation completes, such as having it disappear automatically or on the next click, etc. you can also assign the effect to be executed by clicking on another item in the slide.

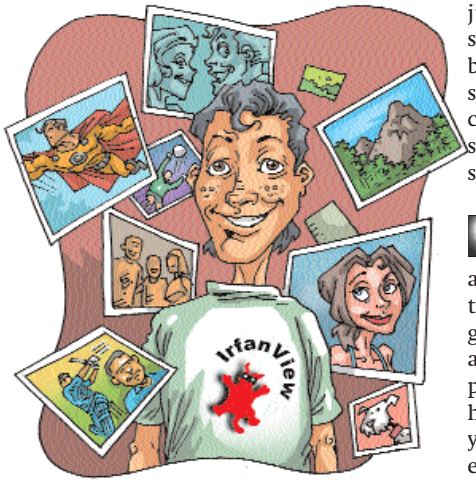
Resize Proportionately

When you want to resize items in a slide, instead of doing so individually, and ruining the aspect ratios in respect to one another, you can just select multiple objects by [**Shift**]-clicking on them to select them and then resizing using your mouse to drag the corners. Remember to keep [**Shift**] pressed in order to make sure that individual aspect ratios are maintained. This works with both text and pictures or any other content selected, so just select and resize without worry!

Viewing Sizes

This tip applies throughout Office 2007, and is with regards to the Zoom feature. Most of us use [**Ctrl**] + mouse scroll down/up to zoom in or out. However, this does so in increments of 10 per cent. For obsessive compulsive people like those of us here at *Digit*, we often find our documents zooming to just inside the screen boundaries or just out of it. In such cases the perfect zoom might be something like 154 per cent. Using the Zoom slider at the bottom right of the Office application window, you can achieve these exact zoom levels.

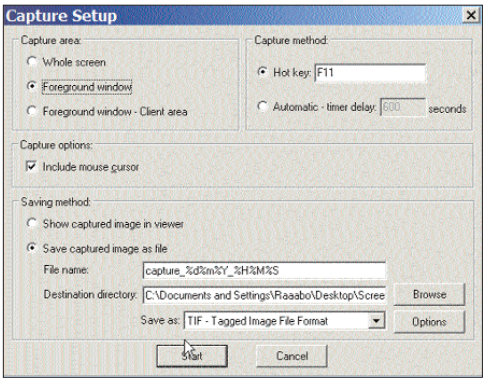
IRFANVIEW



When it comes to image manipulation, nothing (and we do mean *nothing*) beats IrfanView, This tiny and light freeware application uses negligible system resources, is fast, and has a gazillion options to help you manipulate images. It can also do basic touchups to your images, apart from the regular resizing and Web compression that it is most popularly used for! Let's see what exactly is possible with this little wonder software. You can find the installer for IrfanView on every month's *Digit* CD under the Digital Tools > Essentials section.

Easy Screenshots

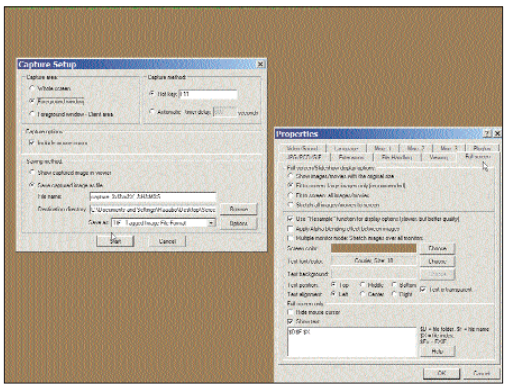
For *Digit* writers, taking screenshots is second nature. However, a lot of people out there need to take screenshots on a regular basis—to post content online, show an expert for help with troubleshooting, explain solutions (if they're the expert), for blog posts, etc. Most of us just press [**Print Screen**] and then paste into an image editing program such as MS Paint or Adobe Photoshop. IrfanView, however, can make such a task as easy as apple pie: just start IrfanView, press [**C**], and you should see the Capture Setup dialog box. Here you can choose a hotkey for screen capture, where to save the captured file, and even what format to save it in. No more hassles taking screenshots!



Setting up screen capture options

Full-screen Control

This one's easy: just press [**Enter**] after you open an image. You can use the right arrow key or the spacebar to go to the next image in the directory, and the left arrow key to see the previous image. This is child's play, however. What is interesting is that if your images are rather dark, they will end up blending into the default black background that IrfanView uses. Instead of settling for this black background, you can choose another colour. Go to **Options** > **Properties** (or just press [**P**]) and then click on the Full Screen tab. Here you will see the option for Screen Color. Just click on the colour and select something from the palette that pops up.



Setting the background colour for full-screen

Format Conversion

Very often we find ourselves stuck with BMP or TIFF images, which we may want to upload to the Web. Now these files are generally large, and for screen rendering (images on Web sites) no one needs anything higher in quality than JPEG. So instead of uploading a 1 MB image of your vacation to the States, do everyone in your mailing list a favour and covert it to a more manageable JPEG. All you need to do is press [**S**], and the "Save Picture As..." dialog box pops up. Select the directory you want to save it to, the Save Quality (compression level)—70 per cent should be fine—and even save as a

30 Minutes Expert

Simplifying The Machine

All you need to know to administer Simple Machines Forum—a free and powerful forum

Mayur Bhatia

Simple Machines Forum (SMF) is probably the easiest forum to install and administer out there. This month, we provide you with tips and secrets to make life easier working with SMF. Before attempting any of these tips, especially the ones that deal with editing specific files, make sure to backup your forum. You can do this through Forum Maintenance Options in your forum administration page or the database program that your forum is running on, like MySQL. For theme-based tweaks, go to your admin page, and navigate to Configuration > Themes and Layout. Scroll down to "Install a new theme" and enter "mytheme" in "Create a copy of default". Choose this newly-created theme to edit when given a choice to make sure your default themes stay intact.

Now everything is locked and loaded, we can move on.

Install Error?

If you come across the following error when installing Simple Machines Forum—

"Please inform your host that the session.save_path specified in php.ini is not valid! It needs to be changed to a directory that exists, and is writable by the user PHP is running under."

And if, for some reason, you simply want to get the forum running however possible for the time being, you can use this tip to bypass the session.save_path check.

Note that the forum may not work properly; this tweak is recommended only for experimental reasons. Anyway, here are the instructions:

Go to your SMF install directory, open the install.php file using WordPad and look for the following lines:

```
elseif (session_save_path() == '/tmp' &&
substr(__FILE__, 1, 2) == ':\\')
                    $error = 'error_ses-
sion_save_path';
```

Change this code to:

```
if (false)
```

This will make the install skip the session save path check entirely and should allow you to continue the install without errors. The code may vary depending on your SMF version, you can search for "session.save_path" in your text editor to find the code



Delete the highlighted text and put in "if (false)" without the quotes to skip the check for session.save_path

which should be similar to "$error = 'error_session_save_path';". Replace the code from the place starting from the last 'elseif' function. The fix itself (the "if (false)" thingy) should work for all versions.

Use A Billboard

In case you are restoring an older database or making any changes which require you to keep the forum offline, instead of shutting down your entire Web server, you can simply turn on maintenance mode, where users see a message when they try to access any URL within the forum.

You can put the forum in Maintenance Mode by opening the settings.php file in notepad and changing "$maintenance=0" to "$maintenance=2". Editing the message, which users see in Maintenance Mode, can be found further down the file.

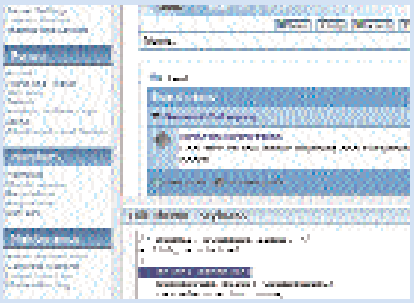
Messed-Up Settings?

If any of your core SMF settings turn out messy and prevent you from accessing the forum, instead of restoring your last backup, you can save time by simply downloading repair_settings.php from **www.simplemachines.org/download/index.php?thanks;filename=repair_settings.php**. This allows you to reset any of your install settings according to your liking. Just place this file in your root SMF folder and access it by using **http://your_forum_url/repair_settings.php**. Remember to put your forum in Maintenance Mode and delete this file after you are done working with it, otherwise anyone will have access to it—malicious users will be able to set their own password if they access this URL.

Colour Schemes The Easy Way

Sick of that black text with yellow background used to highlight your search results? Or change any colours for that matter, but don't want to create an entire theme? Well, head on to themes and layout in the admin page, click on modify themes and finally click on "modify this theme's stylesheet". Notice the weird mixture of numbers and letters next to "color"? These are hex values of your colours, which you can change to your liking. They are sorted in RGB format—FFFFFF represents white, 000000 represents black, FF0000 represents red, 00FF00 represents green, while FFFF00 represents a mix of red and green, and so on.

However, instead of going through



You can put in colour names instead of the hex gibberish

the headache of finding the proper hex value for your colour, you can simply enter in text like "black", "red" or "blue" or even 'yellow' in place of the hex gibberish, experiment and find whether your particular colour text gets accepted.

Your Own Stars

You can add your own GIF images for stars beneath your users' avatars—just take any image you wish to use and

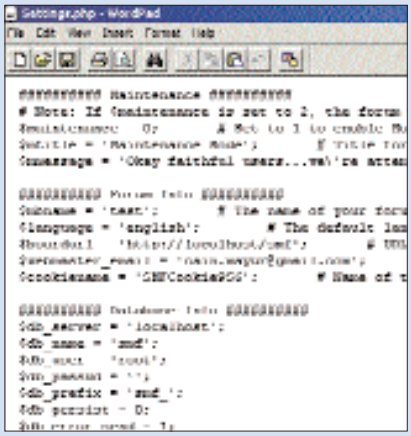
save your file in themes\images in your SMF directory. Note that you need to change the number of stars to one if you wish to use a single image, otherwise you will end up with five successive images for senior members. A neat trick is to have a specific image (like a black belt for administrators) for each member rank, which look more appealing than any number of stars!

Change The Agreement!

If you find the agreement that users see at the registration page drab, you can change it to your own version. Just edit agreement.txt to your liking—you can find this in the root of the folder where SMF is installed.

Oops! I Forgot My Password!

In case you ever end up forgetting your MySQL database password for SMF, you can find it using the settings.php file located in your SMF directory. Open it in Notepad and look in the 'database info' area where the



You can find your database password in the settings.php file

username, password, database name etc will be there. These should be the same settings that you entered when installing SMF.

Changing Smileys

If you don't like the default code for your smileys—say you'd rather have ":evil" as a trigger than something like ">:)", open the subs.php file in the sources folder in your SMF directory. This option is located somewhere around the middle of the file; search for an entry called "parsesmileys" and you should get there.

See the smileyfrom and smiley2 functions? These are the ones you need to edit.

"smileyfrom" is what you will be entering to trigger the corresponding GIF image just below it in the "smiley2" function.

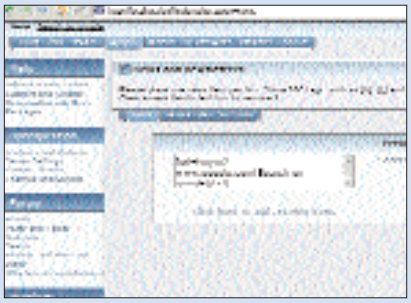
Read The News

To add spice to your forum, you can add news items, which appear at the top of your forum. They can be anything you want, or even URLs. PHP code will work here, too. For example, you can have a link saying "Click here" directing to www.google.com. Just use the following format to do so:

[url=http://www.anyurl.com]Your text[/url]

For images, use an image host like ImageShack, which gives you a URL like this:

[img]http://img444.imageshack.us/img444/3977/clipboard01cz7.jpg[/img]



You can put in URLs for news. php code is also possible here

As mentioned, your PHP functions that you use to post in forums will work here.

Boring Without Add-Ons

It's worth noting that you can install additional packages quite fast by going to Packages in the admin page. The forum will usually update the page and enable you to install them directly without going through too much trouble. Just click on packages under "Main" in the admin page, click on the package you want to install, and click "install now" to immediately download and install the package to your forum.

Spy Game

A modification available at **www.simplemachines.org/community/index.php?topic=36793.0** allows you to track the activities of any user, showing you users' activities in full view. To install and use it, download the file, which in some cases may download as tracker.htm. Copy this file to your SMF folder, the same place where the Readme and SSI.php are located, and rename tracker.htm to tracker.php. This should finish the install.

To view a user's log, simply enter "http://www.yoursite.com/your forum/tracker.php". You can now track any user's activity by simply entering the username in the text box. Again, this option is only available to administrators; should users try to gain unauthorised access to this file they will receive an error, which again, you can customize by opening the tracker.php file and searching for and editing this line:

echo "ERROR: You are not Army.ca Staff.";

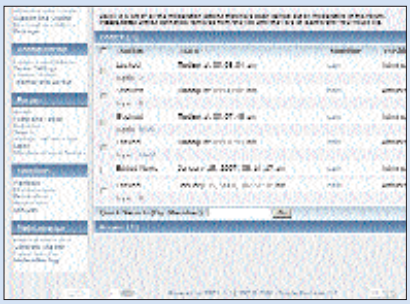
The "Army.ca staff" bit might vary depending on your SMF version. To find the line without any hassles type in "echo "ERROR"" without the quotes in the search box using your text editor.

Register Users Manually

You can manually register anyone through your admin page itself by clicking on "Registration" under the "members' area". This is useful when you have closed down registration for your forum and want to make a few exceptions. Note that you can also make the forum send an e-mail to the user with his username and password.

Spy On Moderators

You can keep track of any moderator actions executed by your moderator team or by yourself. Any actions exclusive to moderators can be logged after enabling "Log Moderation



The moderation log allows you to see all your moderator's activities

Actions" under "Features and Options". This log can be viewed under "Moderation logs" in detail, including the action taken, the username of the moderator, and the IP address from which the action took place.

You can get SMF from www.simplemachines.org. Happy admin-ing! ■

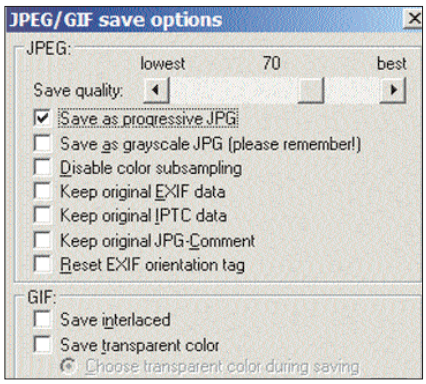
readersletters@jasubhai.com

Keyboard Shortcuts

If command line isn't your scene, then you will love the ease with which IrfanView can be controlled using keyboard and mouse shortcuts,

Key	Function
[Ctrl] + [Page Up]	Show previous page in a multi-page image OR load previous file in directory
[Ctrl]+[Page Down]	Show next page in a multi-page image OR Load next file in directory
[Tab]	Switch between main and thumbnail window
[Ctrl] + [Tab]	Control switch in the thumbnail window
[Pause/Break]	Pause an automatic slideshow. Use again to resume the slideshow.
[Home]	Scroll to begin (horizontal scroll) OR load first file in directory
[Ctrl] + [Home]	Load first file in the directory
[Ctrl] + [End]	Load last file in the directory
[F3]	Show image in hex viewer—lets you read information in the image header
[F4]	Append current file to current slideshow
[F5] or [U]	Refresh (display and directory list)
[F7]	Move file
[F8]	Copy file
[C]	Capture dialog
[D]	Edit > Delete
[E]	Show EXIF dialog for JPG images with available EXIF data
[F]	Switch between "Fit images to desktop" and "Fit window to image"
[G]	Stop GIF or ANI animation
[H]	Horizontal flip
[K]	Filter Factory dialog
[M]	Minimise IrfanView
[N]	Toggle full-screen/slideshow text display
[T]	Thumbnails
[V]	Vertical flip
[Ctrl] + [A]	Select all thumbnails (thumbnail window)
[Ctrl] + [B]	Open "Browse > Subfolders" dialog
[Ctrl] + [C]	Copy image to clipboard
[Ctrl] + [E]	Effects setup
[Ctrl] + [F]	Search files
[Ctrl] + [H]	Show image in original size (no zoom)
[Ctrl] + [I]	Show IPTC dialog for JPG images
[Ctrl] + [K]	Adobe 8BF filters dialog
[Ctrl]+ [M]	Open random image from the directory
[Ctrl] + [Q]	Edit multi-page TIFF
[Ctrl] + [R]	Resample dialog
[Ctrl] + [S]	Save dialog
[Ctrl] + [T]	Edit > Insert text into selection
[Ctrl] + [W]	Start slideshow with files in the current directory
[Ctrl] + [X]	Cut selection rectangle
[Ctrl] + [Y]	Crop selection rectangle
[Shift] + [A]	Start/stop automatic viewing (slideshow in window)
[Shift] + [C]	Edit > Create custom selection
[Shift] + [E]	Open in external viewer/editor
[Shift] + [G]	Enhance colours
[Shift] + [J]	JPEG lossless operations
[Shift] + [L]	Lock/unlock zoom (also in full screen mode)
[Shift] + [M]	Send image by e-mail
[Shift] + [R]	Reopen file
[Shift] + [S]	Sharpen image
[Shift] + [T]	Jump into the toolbar edit field
[Shift] + [U]	Auto colour correction
[Shift] + [Y]	Red eye reduction
[Alt] + [Shift] + [S]	Show/hide status bar
[Alt] + [Shift] + [T]	Show/hide toolbar
[Alt] + [Shift] + [M]	Show/hide menu bar
[Alt] + [Shift] + [C]	Show/hide caption
[Ctrl] + [Shift] + [A]	Acquire/Batch Scanning
[Ctrl] + [Shift] + [L]	Lossless JPG rotation—to Left
[Ctrl] + [Shift] + [R]	Lossless JPG rotation—to Right
[1]	(In Full screen mode) Show images/movies with the original size (1:1)
[2]	(In Full screen mode) Fit to screen: large images only
[3]	(In Full screen mode) Fit to screen: all images/movies
[4]	(In Full screen mode) Stretch all images/movies to screen

progressive JPG. You would have seen such pictures online, where the whole picture appears, blurry at first and then clears up, instead of slowly displaying a line at a time from the top down.

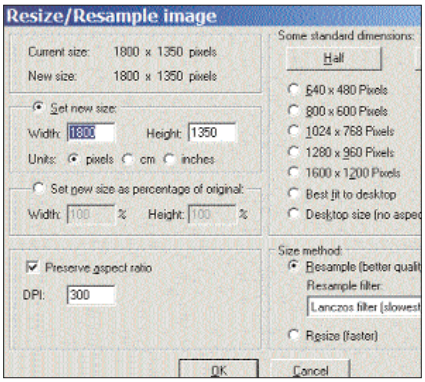


Save as Progressive JPG for online images

Resizing/Resampling

With all the 5-megapixel (or higher) digital cameras around the place, everyone seems to be taking really high resolution images of everything from vacation spots to family gatherings and even their pets. Now if you're one of these shutterbugs, and always click at the highest resolution setting for your camera, you probably have a lot of images stored that exceed 1 MB in size and have greater resolutions than 1600 x 1200. Considering that the standard Desktop has a resolution of just 1024 x 768 (0.8 megapixels), and most sites are designed with this resolution in mind, uploading the complete 5-megapixel image to your photo gallery is kind of pointless. Do the visitors to your site really have to see how many wrinkles your grandmother has on the tip of her nose?

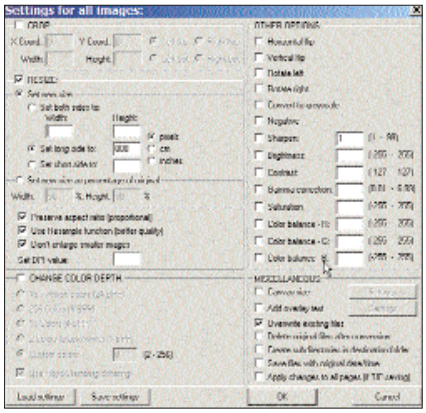
The first thing you should do is resize your images before you even think of uploading them. In IrfanView this is easy. Just press [**Ctrl**] + [**R**] to get to the "Resize/Resample image" dialog box. Here, you can change the image resolution, but make sure to check the "Preserve aspect ratio" box to make sure you don't distort the image. Choose a saner size; even 800 x 600 is more than enough for any Web page, and make sure you set the dpi (dots per inch) to 72—displaying an image on screen (for the Web) needs nothing more than 72 dpi. Remember to make sure that "Resample" is selected instead of "Resize," because Resampling the image will provide better quality. Once you're satisfied with the right size, just press [**S**] to Save As... or [**Ctrl**] + [**S**] to overwrite the original.



All your images don't need to be huge

Batch Conversion

Now the tip above works fine if you have only a couple of images you want to resize/resample. But what if you have 6,000 images you want to resize? Some of these are portrait and some landscape, some are BMPs, some are TIFFs, and some JPGs; what now? If you sit down to resize/resample each image individually, it will take you forever. Instead, open the first image in the folder, then press [B]. Now you will see the Batch Conversion dialog box pop up. Just select all the images from that folder and click on Add (or just click on "Add all".



Batch conversion settings for images

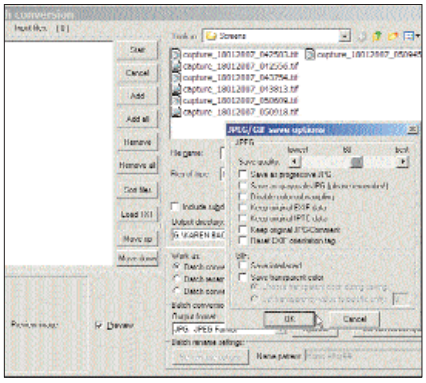
Mouse Shortcuts

A lot of us cannot use either command line or keyboard shortcuts, so then, here are a few mouse shortcuts to help you get started.

Left-click + drag	Make a selection rectangle
[Ctrl] + Left-click + drag	Resize the selection rectangle using the actual rectangle aspect ratio
Right-click + drag	Scroll image in direction of drag. If within the selection, move the selection rectangle
Double-click	Switch to full-screen mode

Now it's time to see the resize/resample options that will help IrfanView automatically resize your images. Look for the "Use advanced options" checkbox and tick it. now click on the Set advanced options button. In order to resize proportionately, again, make sure the Preserve aspect ration checkbox is ticked. Now click on the Resize checkbox and then select the option to either set longer or shorter side to whatever size you want. This is helpful because you might have portraits mixed with landscapes...

Also remember to look at the JPG options, to make sure that everything is fine. Next, you should look at the path in which IrfanView is saving the resized images. The best way we've found is to click on the "Use this directory as output" button, and then add some folder name to the Output directory path. "resized" or "smaller" is what we prefer to call the new folder. After all this, just click on Start and watch in amazement how IrfanView goes about mercilessly reducing image sizes!



Batch conversion settings based on file types

View Hex Information

IrfanView has the ability to read files in hex code. This is very useful if you want to see if certain files have headers, or if images seem to be corrupted. Some RAW images also contain comments, which you can only view by looking at their hex code.

When you open an image, just press [F3], or go to **View > Show HEX View**. This will pop up a window that will show you the image as hex code. If there are multiple images you want to view as hex code, don't close this hex window; instead, just use the **File > Open** menu to open the new file.

Undo The Undo

When playing with really large images, IrfanView (like any other image manupilation software) can become sluggish. You can speed it up, and make it use even less memory than it already does, by disabling the undo option. This will free up a lot of memory. Go to **Options > Properties** (or just press [P]), click on the "Misc. 1" tab, and look for the "Use Undo option (need some memory for the original image)" option. Un-tick this option and click OK.

Centre The Window

From the same menu as the tip above, click on the "Misc. 2" tab and look for "Center window when loading new image", and tick it. This will make sure that any time you open an image in IrfanView, it will open in the centre of the Desktop. Unticking this as well as "Remember the last window size/position" will always open windows on the top left, and allow each image to appear in an appropriately sized window.

Command Line

IrfanView has some very good command line options. Here's a table that will help you remember them.

/one	Force only one instance of IrfanView
/bf	Force the 'Fit images to desktop' display option
/title=text	Set the window title to 'text'
/convert=filename	Convert input file to 'filename' and close IrfanView
/slideshow=file	Play slideshow with the files listed in 'file'
/slideshow=folder	Play slideshow with the files from 'folder'
/thumbs	Force thumbnails
/killmesoftly	Close all IrfanView instances
/closeslideshow	Close slideshow and close IrfanView after the last image
/page=X	Open page number X from a multi-page input image
/panorama=(X,files)	Create panorama image from input files; X = direction (1 or 2)
/jpgq=X	Set JPG save quality
/monitor=X	Start slideshow on monitor X

GAME EASTER EGGS

Max Payne

Rat Race

The "War of the Rats" Easter egg is available in Chapter 2, Part 1. At the start of the level, you'll need to cheat to get yourself a grenade. To get the developer console, edit the game shortcut so it reads as follows: "<Path>\Maxpayne.exe -developer" Type "GetGrenade" (case-sensitive) in the console window to get grenades.

Toss a grenade inside the small gap near the broken tiles, which you'll see immediately after the initial cutscene at the beginning of the level. Max will say, "I had declared war on the rats." As you progress through the level you'll come across rats armed with desert eagles!

GTA San Andreas

GTA Rules!

During the mission "Madd Dogg's Rhymes" you will come across a guard playing a game. Listen carefully he says "Haa haa, Tanner you suck a**! Man how could Refractions mess up so bad?"
"Refractions" is a reference to Reflections, the developers of Driv3r (Driver 3). Tanner is the name of the main character in the game.



DOOM 3

A Peek At Hell

You will come across many broken / damaged computer screens during the game. Find any one that has static showing on it and watch. After some time between the static you will start to see a red background. If you look closely, you will actually discover it's a bunch of skeletons and faces, all in red. That's meant to be a glimpse of Hell.

Star Wars KOTOR 2: The Sith Lords

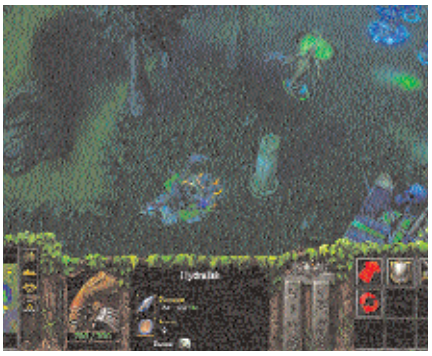
Welcome to the Dark Side

If you ascend the levels and become a truly evil Sith Lord in the game, you will see your character appear amongst the Sith Lords at the start.

Warcraft 3: Reign of Chaos

StarCraft Meets Warcraft

During the Daughters of the Moon mission of the Night Elves part of the campaign just before the Undead base, you will see a lot of trees to the north. If these trees are destroyed, you will free a level 7 hydralisk (from StarCraft) which will join you against the Undead base. If you can't pinpoint the Hydralisk, use the cheat "iseedeadpeople" to view the entire map.



Deus Ex

Yo Jord!

In NYC, you will come upon a man in the process of being mugged by two NSF thugs on a basketball court. After you deal with them, you can find a basketball and play with it. If you manage to shoot a hoop or even get very close, you'll start to get messages from the developers... stuff like "Sign him up for the Knicks."

Neverwinter Nights (with Shadows of Undrentide expansion)

A Chilly Chicken...

When you first enter the town of Hilltop after leaving Drogan's school, if you look carefully, you'll see a small chicken pen just inside the town walls. Go up to it. You'll see most of the chickens moving around in the pen. Aside from one chicken that has a stoneskin (as the spell) texture. This chicken doesn't move at all. Right-click on it to see its description. It states: "This is one cold chicken."

Resident Evil 4

Food For Thought...

This Easter Egg is available just before the fight with Del Lago. At the dock near the lake where he lives, shoot six of the fish that are swimming around. You can also shoot them from inside the boat. As soon as you shoot the sixth one, Del Lago will immediately rise up and swallow Leon whole.

Medal Of Honor: Pacific Assault

May The Force Be With You!

When in the vicinity of Henderson Airfield, you will come across a hut with a radio listening in on Allied planes in the air. Make sure to clear the area of baddies or you'll be toast!

Remain near the hut and you'll hear a conversation between two pilots that's been taken from the movie *Star Wars: A New Hope*. It's the conversation between Luke Skywalker and Wedge just before the trench flight. Pretty apt, don't you think?

Splinter Cell: Chaos Theory

Poking At Billy

In the Hokkaido mission, there are two guards talking about their boss' new vehicle. During the conversation, one says that it has a 640-gig MP3 player as "standard" equipment. The other replies that no one will ever need 640 gigs.

This is a evidently a jab at the comment made by Bill Gates back in 1981 about no-one ever needing more than 640KB of RAM.

FarCry

Piggy-back

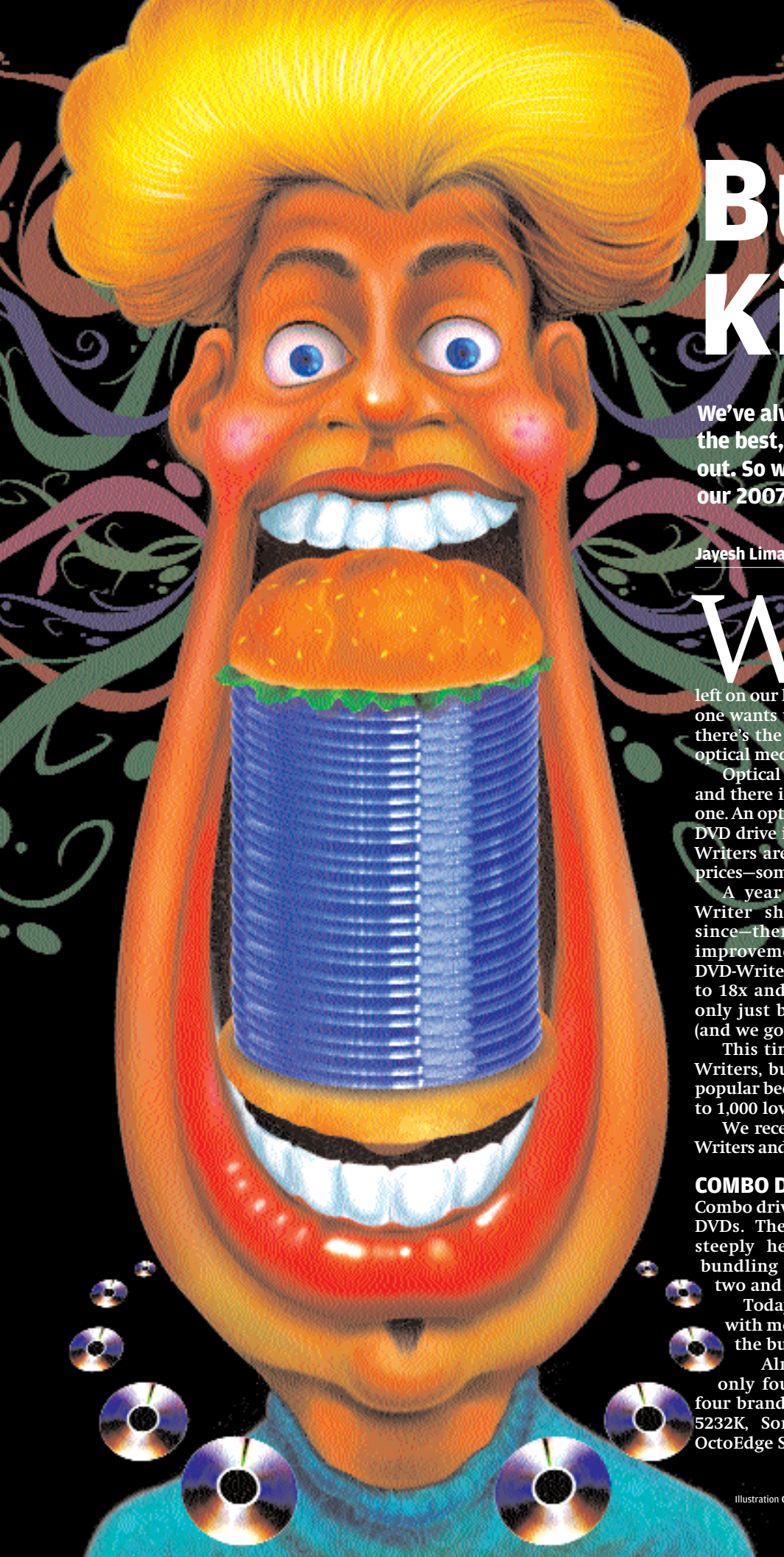
In the Fort level, park your buggy / jeep on the flight of stairs. You may need to wait awhile. Eventually a pig will get into the vehicle and drive it to the road and park it. If you're in the way...ROADKILL!



Delta Force 3: Landwarrior

The Abominable Snowman

Select the mission Operation Free Press. Open up the Commanders map and find the nearest crater-looking landmark just to the southwest. If you go towards this area, there is a small valley with trees all around, and there is a yeti just wandering around. You can shoot him, but he takes quite a beating before going down. ■



BurNer Kings

We've always encouraged you to buy the best, not what the dealer dishes out. So which one *is* the best? Here's our 2007 test for optical drives

Jayesh Limaye

With the increasing penetration of broadband in Indian households, we've begun downloading more and more and before long, find that there's no space left on our hard drive(s). What does one do when one wants to download more? Apart from this, there's the question of backups. In both cases, optical media is the answer.

Optical drives are fairly common these days, and there is scarcely a computer today without one. An optical drive is a CD, DVD, Blu-ray, or HD-DVD drive in most cases. Of these, CD and DVD-Writers are easily available and at throwaway prices—some as low as Rs 2,000.

A year has passed since our last DVD-Writer shootout. Not much has changed since—there have only been a few minor improvements in technology. The speeds of DVD-Writers have been upped a notch or two to 18x and even 20x, though such drives are only just beginning to appear in the market (and we got a few of these too).

This time round, we not only tested DVD-Writers, but also Combo drives: they are still popular because they are priced between Rs 500 to 1,000 lower than DVD-Writers.

We received a total of 12 drives: eight DVD-Writers and four Combo drives, from five brands.

COMBO DRIVES

Combo drives are CD-Writers that can also read DVDs. The popularity of such drives rose steeply here in India when *Digit* started bundling free DVDs full of goodies around two and a half years ago.

Today, combo drives are usually bundled with most PCs, and are usually preferred by the budget-sensitive consumer.

Already on the decline, we received only four products in this category from four brands: the LG GCC-H21N, Lite-On SOHC-5232K, Sony CRX320EE, and the Samsung OctoEdge SH-522C.

Illustration Chaitanya Surpur



Sony CRX320EE
The top performer

FEATURES
Speeds

The write speed of a CD-R has a limit of 52x (7800 KBps), and all the Combo drives were capable of writing at this speed. Likewise, barring the Sony CRX320EE which could write to a CD-RW at 24x, the rest could manage 32x.

The read speed for CD-ROM has reached a limit of 52x, and that for a DVD-ROM is 16x. This indicates that today's Combo drives should perform equally well, but this is not so—as we shall see in the performance tests.

Other Features

All the drives have the IDE interface, and they are capable of DMA transfer mode. In this mode, as opposed to the older PIO mode, the device consumes very little CPU time, leaving more free resources for the PC to do other work.

The buffer memory was uniform, with each drive coming with 2 MB. A larger buffer memory is not really necessary these days because of the increase in speed of the interface.

A good-quality tray indicates, statistically, that the drive will last longer. The Lite-On and Sony drives had better-quality trays. Compared to them, the Samsung and LG drives' trays seemed wobbly and a little weaker.

The drives performed remarkably silent while writing; while reading, the Sony was the quietest. A noisy drive is irritating, and statistically, prone to early failure (probably because of poorer mechanical components).



Lite-On SOHC-5232K
You can't go any cheaper!

Bundled Goodies

Only Sony provides a data cable with the drive, which earns it valuable brownie points. The other brands cut costs by excluding this essential component, which costs only around Rs 50.

Earlier, one CD-R and CD-RW used to be bundled with Combo drives, which isn't the case now since the drives don't come at a premium.

On the software front, each drive came with some version of Nero. The LG and Lite-On drives came with CyberLink PowerDVD for DVD video playback, and with the OEM version of Nero for burning. The Samsung and Sony came with Nero 6 and Nero 7 Essentials respectively, each with Nero Showtime as a component— a DVD-video playback software.

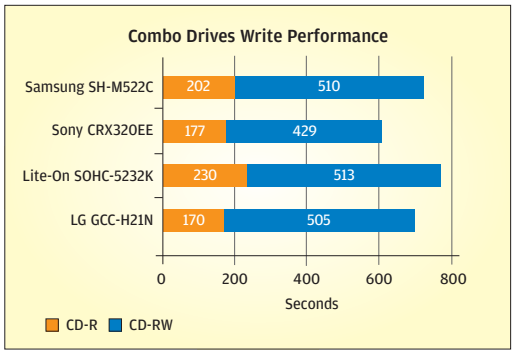
PERFORMANCE
Read Performance

To gauge the read performance, we used Nero CD/DVD Speed. A stamped—as opposed to a burnt—CD and DVD were used for this test. The LG GCC-H21N had a speed of 11.81x, while the Lite-On was close behind with 11.58x (with a DVD). Installing applications and copying data from these drives will therefore be much faster than with the other two drives: 10.52x for the Sony and 10.97x for the Samsung. With a CD, the Lite-On and Samsung drives were neck-and-neck.

The access time test for CD and DVD produced mixed results. While the Lite-On and LG prevailed in the DVD test, the Lite-On and Samsung topped the CD test with the fastest access times. Faster access times means copying assorted data faster.

In both the audio CD ripping and DVD ripping tests, the drives clocked more or less similar timings. You'll have no problems listening to audio CDs or watching DVD movies with any of these drives.

In SiSoft Sandra, the LG scored 7.9 MBps, while the others were faster at 9 MBps. The access times



of the Sony and Lite-On were much better than those of the other two.

Write Performance

The LG burnt the assorted CD at 52x in just 170 seconds and the sequential CD in 165 seconds—a clear leader as far as writing to CD-R is concerned. The Lite-On was the slowest; it could only write at 32x to the 52x-certified Moser Baer CD-R.

The Sony CRX320EE was exceptionally fast, writing to CD-RW at 12x (even when the media was marked 10x!). The other drives managed to write at 10x, and clocked almost similar timings to get the job done. This is funny because 24x is the CD-RW writing speed specified for the Sony, which is lower than the 32x for the others.

DVD-WRITERS

Combo drives as a species is speeding towards extinction, and we cautiously state that this may well be the last time they are being tested. DVD as a media is much cheaper per MB than a CD. Further, it backs up data faster, and a single-layer DVD can hold over seven times the amount of data as compared to a CD.

To back up most movies, which usually occupy space larger than a single-layer DVD or 4.7 GB, you require a dual-layer DVD (if you don't resort to compromising the video quality and removing some features using tools such as DVDShrink). A lot of new games, too, have dual-layer install disks, and to be able to back up so much data, you require a dual-layer DVD media and recorder. Thus, the DVD-Writer is already poised to become the *de facto* optical storage device for the majority of home users.

We received eight DVD-Writers from five brands: the Asus QuieTrack DRW-1612BL, Asus DRW-1608P2, LG GSA-H12N, Lite-On LightScribe SHM-165H6S, Lite-On Super AllWrite LH-16A1P, Lite-On Super AllWrite LH-20A1P, Samsung SuperWriteMaster SH-S182D, and the Sony AW-G170A.

FEATURES

Speeds

Until last year, we thought we'd never see a DVD-Writer that would be able to breach the writing speed of 16x for DVDs. But this time round, we received four drives capable of doing just that! Even though the DVD Forum (originally the DVD Consortium) still specifies 16x as the maximum speed of a DVD, drives from LG, Samsung, and Sony sported 18x write speeds for DVD-R and DVD+R. The Lite-On Super AllWrite LH-20A1P surprised us the most when we found that it could manage 20x!

The DVD rewriting speeds put out by the drives were similar: 8x for DVD+RW and 6x for DVD-RW. All the drives are capable of writing to dual-layer media, and most could do so at 8x to DVD+R DL—with the exception of the LG, capable of 10x. Similarly, with the exception of the Super AllWrite LH-16A1P and the Lite-On LightScribe SHM-165H6S, which could write to DVD-R DL at only 4x, the rest were twice as fast at 8x. For those heavily into DVD movies, these high-speed drives are just right.

BEST BUY digit FEBRUARY 2007



Lite-On Super AllWrite LH-20A1P
Speed *can* come cheap!

DVD-RAM is a media that presents itself as a hard drive. You can copy data to it, delete it, overwrite it, rename it, or do any other file operation just as if you would do with files on your hard drive. The good thing is that you don't need DVD-Writing software to achieve this. This is especially useful for video editing professionals and the like.

During last year's DVD-Writer test, we received only a couple of drives capable of writing to DVD-RAM, but this time the picture was reversed: only one of the drives, the Asus DRW-1608P2, was *not* capable of writing to DVD-RAM. However, even this drive was capable of reading from DVD-RAM, albeit at a crawling 2x. While the Super AllWrite LH-16A1P and LightScribe SHM-165H6S from Lite-On could write to DVD-RAM at 5x, the rest were capable of 12x.

48x was the speed at which most of the drives could write to CD-R, while the ageing Asus 1608P2 could only manage 40x. Though the Lite-On Super AllWrite LH-16A1P and LightScribe SHM-165H6S, which could write at 24x to CD-RW, the Sony AW-G170A whizzed at 40x. The rest could do 32x.

Other Features

Some of the drives had noteworthy features:

LightScribe allows you to burn a CD or DVD label using the same drive that you use to write data. You can create your own label using images or text or both, and burn it to the face of the media. The drive employs an additional laser head for this. You require LightScribe media, though. We received two drives capable of LightScribe: the Asus DRW-1612BL and the Lite-On LightScribe SHM-165H6S. Because LightScribe media is scarce, this feature was not awarded too many points, but still, the feature shouldn't hurt!

Setting "Book Type" of a DVD means you can make the DVD you create appear like a stamped DVD-ROM to any standalone DVD player. Some DVD players have an issue playing DVD video discs created using DVD-Writers, and this feature aims to address that issue. The Asus DRW-1612BL, LG GSA-H12N, Lite-On SHM-165H6S, and the Samsung WriteMaster SH-182D had the feature of setting the media identification bit in the recordable DVD to make it appear as a stamped DVD-ROM.

The drives we received this time were all ruggedly built, unlike during the last comparison, and we must applaud the thought that the manufacturers have put into ensuring the longevity of

How We Tested

The DVD-Writers and Combo drives were tested on a machine that comprised an AMD Athlon64 3800+ processor running at a stock speed of 2.0 GHz, a WinFast 6150K8MA motherboard, 1 GB of 400 MHz Corsair XMS DDR RAM, and a Seagate Barracuda 120 GB SATA150 hard drive. The test machine was powered by an Antec Neo480 480-watt power supply. Windows XP Professional SP2 with the latest drivers was installed afresh on the test machine. Nero 7 Premium Edition was installed for CD and DVD burning. The drives were set as master and connected to the primary IDE channel. The test process consisted of two parts: writing to and reading from different types of media.

The Reading Tests

Nero CD-DVD Speed was used to note the data transfer rates, access/seek times, CPU utilisation, burst rate, etc. for CDs as well as DVDs. This comes bundled with Nero 7 Premium.

SiSoft Sandra Pro Business 2007, which is a system-wide performance benchmark as well as diagnostic utility, was used to measure the DVD read speeds and access times.

dbPowerAmp, an audio format conversion and audio CD ripping tool, was used to rip three selected audio tracks from our test audio CD. The tracks were ripped to 44 kHz MP3 format at 128 Kbps, and the time was logged.

DVD Decrypter is a tool used to rip DVD video files to a hard drive. This was used to rip a selected chapter (a .VOB file, 1 GB) from our test DVD to the hard drive. The time taken was noted.

The Writing Tests

These included logging the time taken to write to CD-R, CD-RW, DVD-R, DVD+R, DVD-RW and DVD+RW media. 700 MB of assorted data—the latest *Digit* CD—was used to write to CD-R, CD-RW and DVD-RW, and the time was logged. Sequential data consisting of a 700 MB file—the same *Digit* CD zipped without compression—was used to write to a CD-R. Similarly, assorted and sequential data of 4.7 GB was used to write to DVD-R and DVD+R media, and the time was noted.

Combo drives went through all the above except for the DVD tests.

The Media

The media used were 52x CD-R from Moser Baer, 10x CD-RW from HP, 16x DVD-R from Sony, 16x DVD+R from Sony, and 4x DVD-RW from HP. A point to note is that some of the DVD-Writers can burn DVDs at speeds in excess of 16x, but since such media is unavailable, the 16x media was burnt at the highest supported speed.

Other Features

Features such as support for various DVD types, LightScribe, capability to set Book Type, tray build quality, silent operation, and bundled accessories such as a data cable, manual, media, bezels, etc. were also noted and rated to derive the final score. Note that the specified read and write speeds were not considered; we only rated the drives based on real world read and write speeds.

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Scoreboard — Combo Drives

BRAND	LG	Lite-On	Sony	Samsung
MODEL	**GCC-H21N**	**SOHC-5232K**	**CRX320EE**	**OctoEdge SH-M522C**
Features (Out of 35)	**20.79**	**22.12**	**22.05**	**22.26**
Drive Specifications				
Write Speeds CD-R (x)	52	52	52	52
Write Speeds CD-RW (x)	32	32	24	32
Read Speeds: CD-ROM (x)	52	52	52	52
Read Speeds: DVD-ROM (x)	16	16	16	16
Interface Mode (PIO/DMA)	DMA	DMA	DMA	DMA
Data Buffer Size (MB)	2	2	2	2
Tray Build Quality (So5*)	3.5	4	4	3.5
Half-height	✔	✔	✔	✔
Silent Operation (So5*)	3.5	3.5	4	3.5
Package Contents				
Data Cable	✘	✘	✔	✘
Manual/Quick Setup Guide	✔	✔	✘	✔
Media (CD)	✘	✘	✘	✘
Software (Burning)	Nero 6 OEM	Nero 7 OEM	Nero 7 Essentials	Nero 6
Software (DVD Playback)	CyberLink PowerDVD 6	Cyberlink PowerDVD 6	Nero ShowTime	Nero ShowTime
Software (Other)	None	None	None	None
Miscellaneous (Extra Bezels, etc.)	None	Screws	None	Audio Cable, Screws
Performance (Out of 50)	**33.61**	**32.73**	**35.88**	**32.18**
READING				
Nero CD/DVD Speed Using a DVD				
Transfer Rate (Average) Measured in x	11.81	11.58	10.52	10.97
Access/Seek Time (Random) (Millisec)	94	92	98	105
CPU Utilisation At 4x (%)	22	18	32	23
Burst Rate (MBps)	26	32	26	26
Spin Up/Down Time (Sec)	2.65 / 3.21	0.5 / 3.03	0.5 / 0.9	2.03 / 2.17
Eject/Load Time (Sec)	1.76 / 1.38	1.66 / 1.34	1.36 / 1.5	1.35 / 0.95
Recognition Time (Sec)	8.39	6.25	9.65	6.61
Nero CD/DVD Speed Using a CD				
Transfer Rate (Average) Measured in x	36.64	38.55	32.02	38.38
Access/Seek Time (Random) (Millisec)	90	99	93	89
CPU Utilisation At 8X (%)	5	14	19	5
Burst Rate (MBps)	22	27	22	24
Spin Up/Down Time (Sec)	3.36 / 2.94	0.5 / 3.06	0.5 / 0.9	2.48 / 2.38
Eject/Load Time (Sec)	1.79 / 1.37	1.95 / 1.32	1.33 / 1.46	1.35 / 0.93
Recognition Time (Sec)	9.81	9.89	10.61	10.82
SiSoft Sandra Pro Business 2007 Using a DVD				
Drive Index (MBps)	7.9	9	9	9
Access Time (Fullstroke, Millisec)	59	24	23	89
Audio CD Ripping Using dbPowerAmp (Sec)	55	56	52	57
DVD Video Ripping Using DVD Decrypter (Sec)	115	115	113	116
WRITING				
CD-R Assorted Data (Sec)	170	230	177	202
CD-R Sequential Data (Sec)	165	209	179	198
CD-RW Assorted Data (Sec)	505	513	429	510
CD-RW Sequential Data (Sec)	510	507	421	508
Price Index (Out of 15)	**5.54**	**13.50**	**10.71**	**7.76**
Price (Rupees)	**2,800**	**1,150**	**1,450**	**2,000**
Total (Out of 100)	**59.95**	**68.35**	**68.63**	**62.21**

*So5 = Scale of Five



+ Fast writing speeds
- Expensive



+ Low cost
- Slow burning speeds



+ Fast performance
- 24x CD-RW burning speed



+ None in particular
- Expensive

Scoreboard — DVD Writers

BRAND	ASUS	ASUS	LG	Lite-On	Lite-On
MODEL	**QuieTrack DRW-1612BL**	**DRW-1608P2**	**GSA-H12N**	**LightScribe SHM-165H6S**	**Super AllWrite LH-16A1P**
Features (Out of 35)	**22.33**	**22.47**	**20.65**	**21.70**	**18.90**
Drive Specifications					
Write Speeds					
DVD+R / -R (x)	16 / 16	16 / 16	18 / 18	16 / 16	16 / 16
DVD+RW / -RW (x)	8 / 6	8 / 6	8 / 6	8 / 6	8 / 6
DVD+R DL / -R DL / -RAM (x)	8 / 8 / 12	8 / 8 / NA	10 / 8 / 12	8 / 4 / 5	8 / 4 / 5
CD-R / RW (x)	48 / 32	40 / 32	48 / 32	48 / 24	48 / 24
Read Speeds: CD-ROM / DVD-ROM (x)	48 / 16	40 / 16	48 / 16	48 / 16	48 / 16
LightScribe	✔	✘	✘	✔	✘
Book Type Setting	✔	✘	✔	✔	✘
Interface Mode (PIO / DMA)	DMA	DMA	DMA	DMA	DMA
Data Buffer Size (MB)	2	2	2	2	2
Tray Build Quality (So5*)	4	4	3.5	4	4
Silent Operation (So5*)	4	2.5	3.5	3	3.5
Package Contents					
Data Cable	✘	✔	✘	✘	✘
Manual / Quick Setup Guide	✔	✔	✔	✔	✔
Media (CD)	✘	✘	✘	✘	✘
Media (DVD)	✘	✘	✘	✘	✘
Software (Burning)	Nero 6 OEM	Nero 6 OEM	Nero 6 OEM	Nero 6 OEM	Nero 6 OEM
Software (DVD Playback)	ASUSDVD	ASUSDVD	CyberLink PowerDVD 6	CyberLink PowerDVD 6	CyberLink PowerDVD 6
Software (Other)	None	Ulead DVD MovieFactory 4.0 Suite SE	CyberLink PowerProducer	None	None
Miscellaneous (Extra Bezels, Etc,)	2 LightScribe CDs, Leather CD Pouch, Screws	Audio Cable, Screws, Emergency Eject Pin	None	2 Bezels, Audio Cable, LightScribe Media	2 Bezels, Audio Cable
Performance (Out of 50)	**35.65**	**32.83**	**38.08**	**36.79**	**39.27**
READING					
Nero CD/DVD Speed Using a DVD					
Transfer Rate (Average) Measured in x	11.41	11.5	7.68	10.86	11.93
Access / Seek Time (Random) (Millisec)	107	119	115	119	94
CPU Utilisation At 4X (%)	19	15	13	20	15
Burst Rate (MBps)	49	42	46	46	44
Spin Up / Down Time (Sec)	5.79 / 3.29	0.5 / 3.15	3.4 / 2.75	4.65 / 3.17	0.5 / 2.07
Eject / Load Time (Sec)	1.99 / 1.16	1.18 / 3.02	2.94 / 1.41	1.64 / 1.6	1.21 / 1.21
Recognition Time (Sec)	12.17	9.45	9.54	8.56	11.33
Nero CD/DVD Speed Using a CD					
Transfer Rate (Average) Measured in X	36.61	31.56	24.11	18.36	36.82
Access/Seek Time (Random) (Millisec)	106	111	112	148	99
CPU Utilisation At 8X (%)	3	6	19	25	10
Burst Rate (MBps)	40	21	39	31	31
Spin Up / Down Time (Sec)	1.77 / 3.03	0.5 / 2.59	3.62 / 3.5	1.97 / 1.29	0.5 / 4.87
Eject / Load Time (Sec)	1.98 / 1.16	1.11 / 3.92	2.96 / 1.42	1.66 / 1.59	1.2 / 1.2
Recognition Time (Sec)	11.73	9.52	9.97	11.82	11.25
SiSoft Sandra Pro Business 2007 Using a DVD					
Drive Index (MBps)	13	13	14	13	16
Access Time (Fullstroke, Millisec)	22	22	20	21	20
Audio CD Ripping Using dbPowerAmp (Sec)	**56.5**	**52.1**	**49.5**	**54.7**	**53.8**
DVD Video Ripping Using DVD Decrypter (Sec)	**79.2**	**388.8**	**91**	**59.1**	**65**
WRITING					
CD-R Assorted / Sequential (Sec)	228 / 226	212 / 199	182 / 181	191 / 189	198 / 193
CD-RW Assorted (Sec)	520	528	498	532	536
DVD-R Assorted / Sequential (Sec)	377 / 377	369 / Failed	335 / 327	377 / 390	369 / 360
DVD+R Assorted / Sequential (Sec)	370 / 420	379 / 402	357 / 352	375 / 386	355 / 331
DVD-RW 700 MB Assorted (Sec)	157	171	141	146	165
Price Index (Out of 15)	**7.52**	**10.53**	**6.42**	**9.24**	**13.50**
Price (Rupees)	**3,500**	**2,500**	**4,100**	**2,850**	**1,950**
Total (Out of 100)	**65.51**	**65.83**	**65.15**	**67.73**	**71.67**
*So5 = Scale of Five	 + Noiseless - Expensive	 + Software bundle - Slow performance	 + Software bundle - Slower DVD ripping	 + LightScribe - Noisy while reading	 + Good performance - None in particular

	Lite-On	Samsung	Sony
	Super AllWrite LH-20A1P	**Super-Writemaster SH-S182D**	**AW-G170A**
	21.00	**23.52**	**18.83**
	20 / 20	18 / 18	18 / 18
	8 / 6	8 / 6	8 / 6
	8 / 8 / 12	8 / 8 / 12	8 / 8 / 12
	48 / 32	48 / 32	48 / 40
	48 / 16	48 / 16	48 / 16
	✗	✗	✗
	✗	✔	✗
	DMA	DMA	DMA
	2	2	2
	4	3.5	4
	3.5	3.5	3.5
	✗	✔	✔
	✔	✔	✗
	✗	✗	✗
	2 DVD-R, DVD-R DL	✗	✗
	Nero 7 Essentials	Nero 6	Nero 7 Essentials
	Nero ShowTime	Nero ShowTime	Nero ShowTime
	None	None	None
	2 Bezels, Screws	Black Bezel, Audio Cable, Screws	None
	41.36	**32.67**	**36.79**
	12.16	12.13	11.71
	91	96	147
	15	21	18
	42	28	48
	0.5 / 2.43	1.88 / 3.57	2.91 / 3.6
	1.33 / 1.3	1.65 / 1.07	1.76 / 1.5
	11.75	8.19	10.58
	36.89	37.18	36.08
	99	108	154
	9	6	3
	31	22	43
	0.5 / 1.23	3.34 / 3.32	2.5 / 3.21
	1.32 / 1.29	1.65 / 1.07	1.76 / 1.5
	12.33	8.88	9.61
	17	7	13
	19	464	23
	53.3	**101**	**53.3**
	62.2	**77.3**	**64.3**
	195 / 193	196 / 196	315 / 311
	540	515	512
	323 / 309	379 / 377	336 / 331
	339 / 341	602 / 508	331 / 329
	141	135	150
	12.57	**8.78**	**10.74**
	2,095	**3,000**	**2,450**
	74.92	**64.96**	**66.37**
			
	+ Fast performance - None in particular	+ 18X writing to DVD ± R - Expensive	+ 18X writing to DVD ± R - Slow CD writing speeds



the drives. The LG and Samsung drives had trays that appeared a little weaker than those on the other drives, but it's not something the majority would even notice.

The ability of a drive to operate silently is often an indicator of better mechanics and smoother alignment of the various moving components. This in turn means longer life. True to its name, the Asus QuieTrack DRW-1612BL was the quietest of the lot. The other Asus, on the other hand, was the noisiest. It was so noisy we could feel the vibrations through the table on which the PC was placed! The Lite-On SHM-165H6S was also a noisy reader, though hardly as loud as the Asus DRW-1608P2.

BEST BUY digit FEBRUARY 2007



Lite-On Super AllWrite LH-16A1P
Eminently affordable

Bundled Goodies

A DVD-Writer is more expensive than a Combo drive, so we'd hoped that all the companies would bundle a data cable. However, only the Asus DRW-1608P2, Samsung, and Sony writers came with a data cable.

Bundling media with drives was fashionable until last year, but this time things were different. Only the Lite-On Super AllWrite LH-20A1P came with two DVD-R and a DVD-R DL. The Lite-On LightScribe SHM-165H6S was sent with a LightScribe CD, while the Asus QuieTrack DRW-1612BL came with two. LightScribe media is scarce, like we said, and bundling one such disc allows you to form your first impressions about this technology—until you can get it in stores.

All the drives came with a burning software and a software DVD player. A large proportion of the drives was bundled with Nero 6 OEM. Samsung bundled Nero 6, while the Lite-On Super AllWrite LH-20A1P and the Sony provided Nero 7 Essentials. As you might be aware, Nero 6 OEM does not come with Showtime, the DVD playing software, which is a part of Nero 6 and Nero 7 Essentials. So the drives with Nero 6 OEM were bundled with CyberLink PowerDVD 6, with Asus bundling ASUSDVD (an OEM branded version of PowerDVD). Asus is known for its generous bundle across all its products. It bundled Ulead DVD MovieFactory 4.0 Suite SE, which is a premium DVD authoring software and video editor. LG bundled CyberLink PowerProducer, another video editing software.

The bezel determines the looks of the drive, since it is the only part of the drive that is visible when the drive is fitted inside the cabinet. One would want a drive with a bezel colour that matches that of the cabinet exterior. The Lite-On drives came with two bezels—one grey and one black—in addition to the white one on the drive. The Samsung came with an extra black bezel.

PERFORMANCE

Read Performance

The drives that put forth the fastest transfer rates in the DVD part of the Nero CD/DVD speed test were the Lite-On LH-20A1P and the Samsung SH-S182D, while the LG was the slowest of the drives. The LG did not fare well in the CD part of this test either, but it wasn't the lowest scorer here—that place went to the Lite-On SHM-165H6S. This drive was reading OK, but its speed dropped suddenly at the 3.5 GB mark, and it fell to below 4x before climbing back at the 4 GB mark.

Most of these drives were markedly faster and performed well in the SiSoft Sandra test. The Samsung was a low scorer in this test with just a transfer rate of 7 MBps, while the Lite-On LH-20A1P top-scored with 17 MBps. Its access time was also the fastest at just 19 seconds.

The LG ripped the songs off the audio CD in the lowest time of 49.5 seconds, while the rest of the drives (other than the Samsung) took just a few seconds longer. The Samsung took over twice the amount of time—101 seconds to rip.

The DVD ripping test produced mixed results. The Lite-On SHM-165H6S was the fastest, taking just 59.1 seconds, whereas the Asus DRW-1608P2 was the slowest with a excruciatingly slow 388.8 seconds.

Write Performance

None of the drives could recognise the 52x-certified Moser Baer CD-R at the rated speed. We tried another brand of media—Eurovision—but the results were pretty much the same. The Sony

Nero 7 Essentials

Unlike last year, burning software such as Sonic/Roxio Easy Media Creator 8, RecordNow, etc., did not feature at all. We found that all the drive manufacturers have endorsed burning software from Nero (version 6 or 7). Nero 7 Essentials, which is the most feature-rich of the bundled versions, is not just a CD/DVD burning software. Nero Burning ROM—the main burning program—supports a wide range of CD and DVD formats, from regular CD to even Audiobook CD, and DVD-Video, DVD-bootable and DVD-ROM (UDF/ISO). It comes ready with support for newer standards such as Blu-ray. It can even burn LightScribe labels on supported drives.

Overburning is another feature that lets you burn beyond a disc's normal capacity, and this is well-supported here. It also lets you set the Book-Type for maximum compatibility. There are also certain extras such as a music file encoder and ripper.

InCD enables the very convenient drag-and-drop writing a.k.a. packet writing. In this process, you can simply drag and drop data files onto the media instead of using the burning software.

BackItUp allows you to back up your files and folders, or even your entire hard disk.

Still more useful programs are bundled with Nero: Nero Vision is a full-fledged video capture solution that lets you transfer your digital memories to optical media. Be your own DJ with SoundTrax and create the ultimate music mix in this virtual multi-track music studio, and edit tracks using WaveEditor. Use Recode to master your own DVD, or use it to create movies playable on your mobile device.

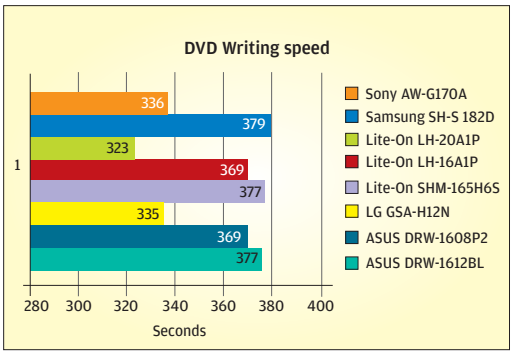
Cover Designer 2 allows you to design your own covers to adorn the face of a CD or DVD. PhotoSnap is a nice little photo editor that lets you achieve tasks with difficulties ranging from simple to medium. Nero Scout is an indexing service that indexes data on your hard drive and enables access to your files as fast as possible. If you have a CD/DVD image but do not wish to burn it, you can preview it by mounting it on ImageDrive, a virtual drive software.

The drives that came with Nero 7 Essentials did not bundle a DVD playing software because Nero ShowTime comes with it, and is a very capable software DVD player.

Nero 7 Essentials is more than a burning solution. It is a complete multimedia entertainment suite.

recognised the media as only 16x, and finished the assorted data write test the slowest, at 315 seconds. The Asus DRW-1612BL, which recognised the media as 24x, completed the test in 228 seconds. The LG recognised the media as 48x, and could therefore write the fastest—just 182 seconds.

The 20x-capable drive from Lite-On, the LH-20A1P, sped away in the DVD-R test with 323 seconds and in the DVD+R with 309 seconds. It wrote to the 16x-certified Sony media at 20x for DVD-R and 18x for DVD+R. The Asus drive featuring "overspeeding", could write to an 8x DVD+R media at 12x last year, and thus proved faster; this time round, the Asus drives, did not prove that



they could indeed "overspeed."

The Samsung was the slowest in the DVD+R assorted data test. At around 85 per cent, the speed suddenly plunged below 4x, and it took 602 seconds for this drive to complete the burning process. But in the DVD+RW test, this drive emerged the fastest, burning the 700 MB assorted data in just 135 seconds. The Asus DRW-1608P2 was the slowest here with 171 seconds. It was also the only drive that produced coasters. While it could burn assorted data, it failed to burn to sequential DVD-R media. We repeated the test several times but found the same result.

The Verdict

After all that burning and the smoke cleared, we took a look at the prices to help us determine the overall winner in each class of drives.

The Sony CRX320EE had the lowest specified CD-RW writing speeds of 24x as compared to 32x for the rest, yet it could burn a 10x CD-RW at 12x, which saves you a minute and a half. It was the top scorer as far as performance is concerned, exhibiting faster ripping speeds along with the second-fastest writing speeds for CD-R. The Sony CRX320EE, priced the second-lowest, is a deserving winner of the *Digit Best Buy Gold* for Combo drives.

Coming in close was the inexpensive Lite-On SOHC-5232K, which with its average performance, wins the *Digit Best Buy Silver* for Combo drives.

The Lite-On Super AllWrite LH-20A1P, with the highest writing speed to DVD-R in the world—20x, a stellar performance that left the competition biting the dust, and a surprisingly low price of Rs 2,095, was adjudged the winner of the *Digit Best Buy Gold* for DVD-Writers. With equally impressive features—being able to write to all types of media, bundled with two bezels, coming in second in terms of performance, and priced the lowest of the lot at Rs 1,950, the Lite-On Super AllWrite LH-16A1P drafted close behind its sibling and was awarded the *Digit Best Buy Silver* for DVD-Writers.

Contact Sheet — Optical Drives

Brand	Company	Phone	E-mail
ASUS	Asustek Computer Inc	022-40058888	media_india@asus.com
LG	LG Electronics India Pvt Ltd	0120-2560900	response@lgindia.com
Lite-On	Mediatech India Distribution P Ltd	022-26361111	digit@mediatechindia.com
Samsung	Samsung India Electronics P Ltd	011-41511234	hari.pandey@samsung.com
Sony	Rashi Peripherals Pvt Ltd	022-67090814	navinderc@rptechindia.com

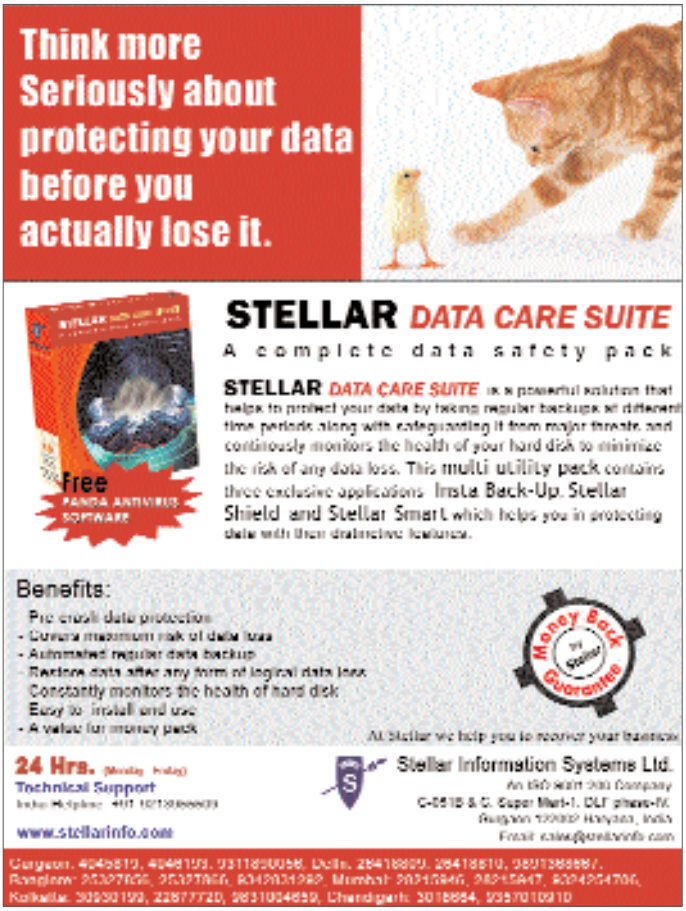
Final Thoughts

Last year, we had speculated that in 2007, we might see a shootout of Blu-ray and HD-DVD drives. Our speculations have gone all wrong. One of the reasons is the format war, which continues, and with no party ready to back down. The consumer is the one who loses out, because the technology has existed for a considerable period of time, but the manufacturers have decided to hold it back.

Another reason for us not being able to conduct tests of HD-DVD and Blu-ray drives is the scarce availability and the insanely high prices of not just the drives, but also of the media. A Blu-ray drive costs an astronomical Rs 43,000, and the media available now costs an equally ridiculous Rs 1,600!

We love our hardware here at *Digit*, and we're now hoping that we'll get to see the next generation of optical media when we come back to testing optical drives next year. ■

jayesh_limaye@thinkdigit.com



Q&A

Your Questions, Our Answers

Quick Vs. Speedy!

Q **I have a Pentium III 700 MHz machine with Windows 98 SE. For the last few months, I've been putting up with two viruses (or possibly its variants)—"Putta.com" and "Speedy.bat". I use Quick Heal version 7.0 with recently-updated definition files, but it's unable to remove all traces of these viruses.**

Pavan Jain

A Your computer seems to be affected by W32.Opaserv.ad.Worm, which exploits a security vulnerability in 9x/Me systems, allowing it to access shares without the password. If Quick Heal is unable to remove the virus, you could try using another anti-virus, or cleaning the virus manually.

To do a manual clean, first boot your machine in Safe Mode and manually delete any files that Quick Heal detects. If you're unable to delete files because they are in use, use a freeware such as Unlocker (**http://ccollomb.free.fr/unlocker/**) to get rid of them. Next, in the Registry Editor, navigate to **HKEY_LOCAL_MACHINE\Software\Microsoft\Windows\Run**, and remove any entries that point to "speedy.bat", "putta.com", and any files that Quick Heal identifies as a virus or as any other kind of suspicious file. Repeat this under HKEY_CURRENT_USER.

Next, go to **Start > Run**, type in "**sysedit**", and go to the win.ini window. Look for a line similar to "**run = speedy.bat**", and remove everything after "**run=**". Reboot your system after these changes, and then apply the patch available at **www.microsoft.com/technet/security/bulletin/MS00-072.mspx** to fix the vulnerabilities exploited by the virus.

Damn Drivers!

Q **I use a Dell Optiplex GX280 Desktop. I wanted to use a modem, and I ordered a PCI raiser card (A card with additional PCI slots). I installed my modem on Windows XP SP1, but after installing the default driver, I got an error message saying, "Your hardware won't work properly until reboot." When I restarted my computer, I got a blue screen error saying "IRQ_LESS_OR_NOT_EQUAL." What does that mean? In Windows XP, IRQ conflicts are not a problem, like they once were in Win9x, as one of my other systems with the same configuration doesn't have this problem.**

Uday Sharma

A Your problem seems to be directly related to the default drivers for your modem. Since you haven't mentioned the manufacturer and model, you might want to check if Windows has included your product in the Hardware Compatibility List. If it isn't supported, you can install the drivers for your modem from the manufacturer's Web site, or visit **www.driverguide.com** for updated drivers for your card

Silent Movies

Q **I have a Pentium 4 1.5 GHz running Windows XP. I recently bought a Samsung 16x DVD-Writer. It functions well while burning, but when I play movies, there is no audio. I have no problems with the video though.**

G Abhilash

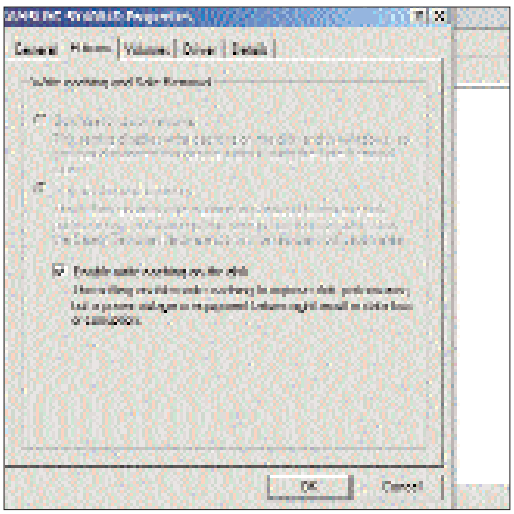
A To make sure the audio settings are correct, look for settings such as digital output, SPDIF, and 3D audio support in your player and sound card driver software. Disable them one by one. If the problem persists, you will need to install the proper audio codecs. You can also try free players with inbuilt codecs—such as VLC Media Player—which is distributed on our CD every month.

Putting It Off

Q **I have a Pentium 4 2.60 GHz processor on an ASUS P4XP-X motherboard. Recently, while performing some tests, I got a message: "Warning: Disk write caching is disabled." What is disk write caching, and how can I enable it? My hard disk is a Seagate ST340014A.**

Arun Kafley

A In disk write caching, instead of writing data immediately to disk, a "note" is made to finish the task later, which could be when your PC shuts down, or during an idle period. Enabling it could improve disk performance, but there's a possibility of lost or corrupted data if Windows does not shut down properly.



Disk write caching can improve performance at the cost of possible corrupted data in the event of a crash

You can enable disk write caching by going to **Control Panel > System > Hardware** tab, and clicking the Device Manager button. Then click the plus sign next to Disk Drives, right-click on your drive, select Properties, click the Policies tab, and check the box next to "Enable write caching on this disk". For OSes other than XP and 2000, instead of the Policies tab, there could be a Settings tab where the disk write caching option would be located.

A Soundtrack Recorder?

Q How can I record (only) the audio from movie files?

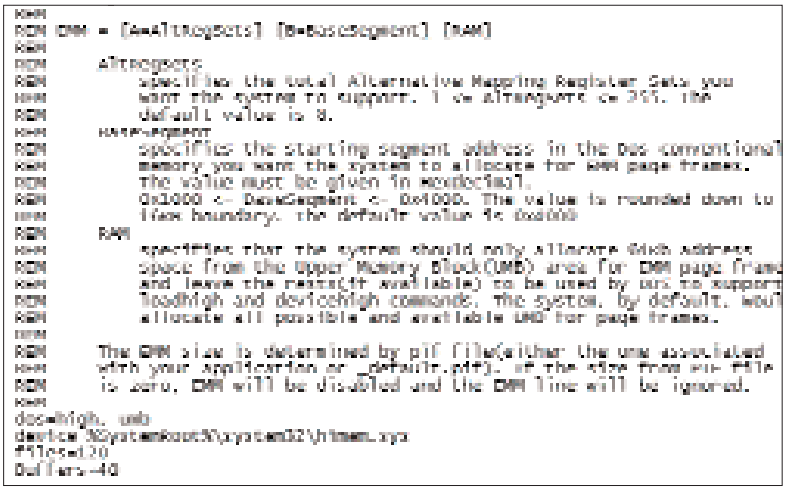
Gilbert Marak

A You can use software such as VirtualDub (**www.virtualdub.org**), which is open source, to extract the audio from your video files. There are other software available too, but VirtualDub will be sufficient for your purpose.

A Throwback To DOS

Q When I try to run Tally 4.5 under XP, I get an error message: "Insufficient files provided by DOS." Why?

A K De



Add the 2 lines at the end of the file

A In the **C:\Windows\System32** directory (assuming C: is where Windows is installed), open (or create using Notepad) the file called CONFIG.NT, add the following lines, and save the file.

Files=120
Buffers=40

After restarting your system, Tally 4.5 should work fine.

Drivers Again...

Q I bought an AMD64 3000+ 939, an MSI RS482, and an XFX 7300LE. Can you tell me what version of Pixel and Vertex Shaders my card has? I'm facing peculiar problems in some games. In *VRally*, I experience a lot of screen corruptions. While the game runs without any jerks, no frames are rendered properly. In *Far Cry*, when I started the game at very high settings, it ran smoothly, but there were plenty of graphics bugs like a black background with texture corruptions. When I lower the settings a bit, I don't come across as much texture corruption.

Games like *Need for Speed: Carbon*, *Just Cause*, *Scarface*, *True Crime 2*, along with most new games, run fine without any problems whatsoever. What could be the problem with those two games?

Tathagata Thokdar

A Your XFX 7300LE has Pixel Shader 3 and Vertex Shader 3, but this isn't the cause of your graphics-related problems. They are likely related to your graphics drivers, or bugs in the games themselves, since it happens only with two of your games. Make sure your detonator drivers are up-to-date: you can get the latest version from **www.nvidia.com**. *Far Cry* is generally known to have a lot of bugs in the earlier versions; consider upgrading to the latest (1.40) from **www.ubi.com/US/Downloads/Info.aspx?dlId=691**

It's Wormed Its Way Through

Q I have an HP D220 MT (PD795PA), Intel Pentium 4 2.80 GHz, and 504 MB of RAM with XP Pro SP2 installed. I get a message at every time I log on to Windows: "Windows cannot find C:\WINDOWS\sembako-cnzjlii.exe. Make sure you typed the name correctly, and then try again..." What's up?

Suraj

A Your system is infected with the W32/Brontok-M worm; the error message is due to the infected file being either missing or relocated. Boot up your system in Safe Mode and run a full anti-virus scan on all your hard disks. Delete / clean any files that have been infected with the worm.

If the startup entry remains, and you still get the error, try and find "**sembako-cnzjlii.exe**" somewhere in the Registry. Delete all values pertaining to it in the right hand pane, but be careful not to delete any keys on the left, or values that don't point to the malicious .exe file.

A Dud Of A Download!

Q I downloaded Windows Vista (vista_5600.16384.060829-2230_x64fre_client-lr1cxfre_en_dvd.iso.zip) from the Microsoft Web site, and unzipped it to get the vista_5600.16384.060829-2230_x64fre_client-lr1cxfre_en_dvd.iso.dlm (size: 3.59 GB) file. But I can't open it because .dlm is an unrecognised extension.

I tried Microsoft File Transfer Manager (FTM) to open the .dlm file, but got a Visual C++ runtime error. And when I tried to open the file using Ultra ISO, I could only see a Readme with the line "This disc contains a 'UDF' file system and requires an operating system that supports the ISO-13346 'UDF' file system specification." Next, I removed the .dlm extension from the unzipped file to make it an ISO file, which I burnt onto DVD using Nero

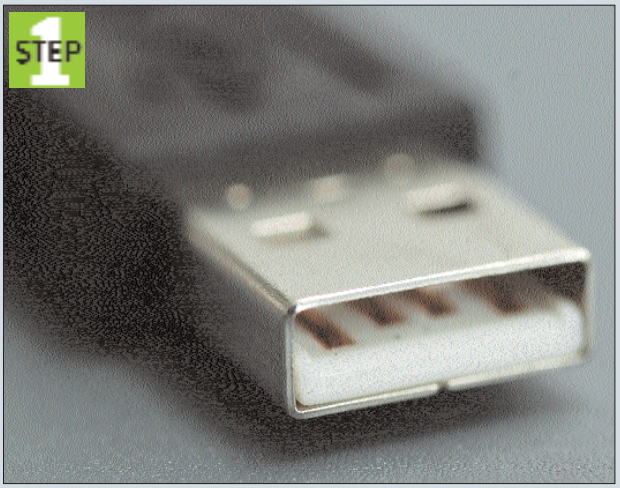
HOW TO

Universal Serial Charger

Old USB cable + old charger = USB phone charger!

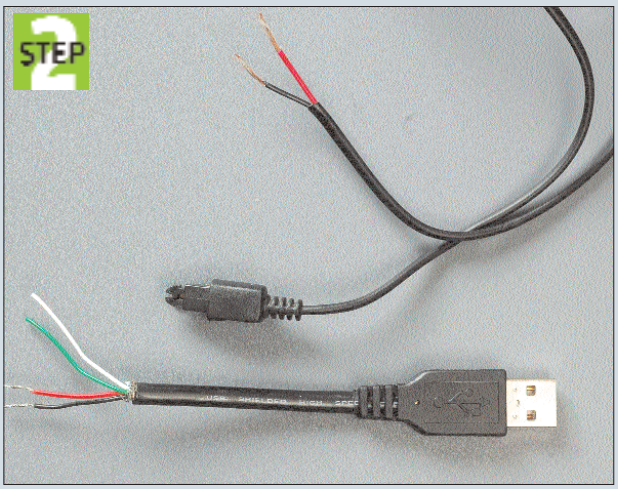
Nimish Chandiramani

You're a road warrior—complete with laptop, but your cell phone is running out of power. You *need* it on, but there's not a power outlet in sight. What do you do? In the post-K750i era, most phones will charge off their USB cables, but fret not if you have an older phone—if you've got a charger and USB cable to spare, you can make your own in 15 minutes! The method works with most phones that have a 3.6 Volt Li-ion battery (this is usually mentioned on the battery itself), but still may not work with some, so make sure it's a *spare* charger you're using. We've used a Sony Ericsson K508 for this, but most phones will do—there are supposedly cell phones out there that wouldn't work—requiring greater current than the USB port can deliver—but these should be very few, and you'd be really unlucky to have ended up with one.



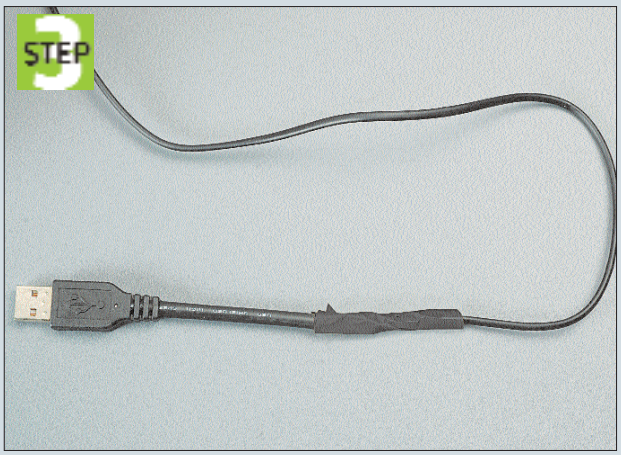
Know Thy USB

The two extremes (pins 4 and 1from left to right) are the ones we're after—they're the negative and positive terminals for USB power respectively. Pins 2 and 3 are for data.



Hack 'Em Up

Use a wire cutter or just a blade to cut and open up both the charger and USB cable. The red and black wires in the USB cable are what we're concerned with—the white and green are for data, so don't bother with those. Your charger should have red and black wires too—we know of none that wouldn't have the colour-coding, but you never know.



Making Ends Meet

You've probably guessed this now—join the two red wires and the two black wires. If you have access to one, use a soldering iron and secure the connections using solder. This will keep it intact even if you use it a bit roughly. Insulate them from each other using electrical tape *(extremely* important), and you're done!



Testing...

Voila! It works! The next time you have a battery emergency, just leech power off your laptop and make that all-important call!■

nimish_chandiramani@thinkdigit.com

Coasters For Sale!

Q I have a Pentium 4 1.8 GHz, Intel Original GEBV2, 256 MB RAM, LG 52x CD-Writer, and a 40 GB HDD. When I try to burn a disc, it writes to the 56% mark before giving me an error saying "Couldn't perform end track". I have lost about 30 to 40 CDs!

Manjunath Prakash

A Since you haven't mentioned which software you use for writing, I'd suggest trying to use a different software—Nero is good. If the problem persists, try the following. Assuming you're using Nero:

- Decrease the write speed a few notches (the drive might have a problem only with high speeds)
- Enable buffer underrun protection if it's turned off
- Use a CD lens cleaner
- Download the latest firmware for the optical drive and flash it. Most manufacturers periodically post new revisions of firmware aimed at fixing bugs
- Try using a different brand of media

If all this fails, get the drive replaced if it is under warranty. And if that's not the case, it's shopping time!

Express, but after burning it, I can't see anything on the DVD (although I'd gotten a successful "burnt" message).

Anindya Sunder Sen

A The fact that the extracted file is coming in with the .dlm extension is abnormal. Also, UltraISO showing only one file (the Readme) suggests that the download is corrupted. Re-download the file. We'd suggest using a good download manager such as FlashGet, which you can find on this month's CD.

So Who Am I?

Q I run Windows XP SP2. I've installed Nokia PC Suite for my Nokia 3250. When I browsed my memory card reader, I didn't get the folder options menu at all. When I go into Help and Support and go into Folder Options, I get an error saying, "This operation has been cancelled due to restrictions in effect on this computer. Please contact your system administrator." But I *am* the system administrator!

Vignesh

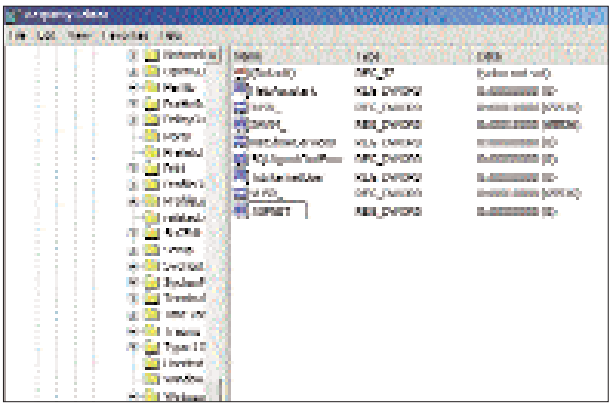
A It looks like your Folder Options menu has disappeared either because of utilities that make changes to the registry, or because some other user has set this restriction. To fix this, in the Registry Editor, navigate to **HKEY_LOCAL_MACHINE\Software\Microsoft\Windows\CurrentVersion\Policies**, there, look for a value called **NoFolderOptions**, double-click it and change the value from **1** to **0**. Do the same in **HKEY_CURRENT_USER**. You should now be able to see Folder Options under the Tools menu in Windows Explorer.

Who's That?

Q There's always a user called "ASP.NET" on my XP Welcome screen. I tried deleting the user, but doing so also deletes some of the files in My Documents. I cannot even log in to that user account, as it is password-protected. How do I get rid of it?

Amit Jha

A First, there's no need to worry about this "user": neither is it a virus, nor will it interfere with your work. It's created when you install the Microsoft .NET framework. If you want to prevent it from showing up altogether in the welcome screen, you can add ASP.NET to the special accounts list. To do this, in the Registry Editor, go to **HKEY_LOCAL_MACHINE\Software\Microsoft\Windows NT\CurrentVersion\Winlogon\SpecialAccounts\Userlist**. Right-click in the right pane and select **New > DWORD Value**, enter "ASPNET", and press [**Enter**].



Make a DWORD value for the user to be added in special accounts

Toneless?

Q I have a D-Link modem that reports that it does not detect a dial tone when I try to connect to the Internet. What could be the problem?

Abul Khair

A You first need to check whether the dial tone is available at the telephone outlet. If you have a dedicated line for your modem, then you must connect it to a telephone and make sure that a dial tone exists.

Next, you need to disable "Wait for dial tone." To do this, open the Control Panel, double-click "Phone and Modem Options", select the Modems tab, select the modem, and click Properties. Under the General tab, deselect "Wait for dial tone before dialing".

If that doesn't work, remove the phone jack from your modem and reconnect it. If that doesn't work, check both ends of the phone cable to make sure the connection is good. Use a different cable to connect your modem to the telephone outlet.

Go through the modem manual to see if your modem requires an initialisation string. If it does, try setting those. ■

Get Help Now!

E-mail us your computing problems along with your contact details and complete system configuration to **sos@jasubhai.com**, and we might answer them here! Since we get many more mails per day than we can handle, it may take some time for your query to be answered. Rest assured, we are listening!

Agent 001

Surfing The Airwaves

CAS had added to the confusion of what TV-Tuner to buy. Seeing as more and more people are TV-enabling their PCs, our Agent does the Lamington Road rounds—and ends up putting off a purchase

A good friend recently moved to Mumbai. Being an IT guy, he'd brought along his PC. He isn't a gamer, so he gets his kicks elsewhere; now I'm not talking booze and discos... he's a TV buff who likes to spend his weekends glued to *Star World*.

One of his first purchases here in Mumbai was a TV set... no surprises. Problem is, he isn't at home most of the time, so he decided he needed a TV-Tuner card or box to record the serials he just couldn't miss. After having invested in a mammoth 500 GB hard drive (and the TV of course), he could only spend 3,000 for a TV-Tuner.

We met up at Vashi and boarded an early local to Grant Road station—with Lamington road in mind. Unfortunately, I miscalculated the commute time, and very few shops were open when we arrived. Well, even the best Agents trip up sometimes! A couple of Cokes later, the shutters began to open. The first shopkeeper greeted us with a toothy smile. Ah, the joy of being first customers...

We were shown an (analogue) Pinnacle PCTV 50e costing Rs 4,250. It's a rather bland-looking external TV-Tuner that can record directly to DivX. Also proffered was a Dazzle internal TV-Tuner at Rs 1,400. Its an analogue model. The box didn't have a specific model number—it just said "Dazzle PCI TV Tuner."

Dealer #2 showed us a couple of Leadtek models. One was an ultra-compact Winfast PalmTop TV, a cute orange analogue tuner box. The PalmTop TV has a host of powerful features including seamless playback for multiple video and audio files. It is priced at Rs 4,000. Next up was the Leadtek DTV 2000H. This PCI model is digital, and it, too, has a lot of features. The retail cost of the bundled software is more than that of the card itself! You can directly burn programmes to DVDs. At Rs 4,600, the DTV 2000H supports HD output as well.

Variety is the spice of life...so on to dealer number three. Before entering the shop, my friend told me he'd prefer an internal card (no desk space!) Next up was a Leadtek Winfast TV Dongle. It is digital, and ultra-compact-a little larger than a pen drive. The large feature set will be really appreciated, especially when you consider that it's so small. In fact, this miniature TV-Tuner isn't lacking in features when compared to much larger models. The remote, while feature-rich, looks bland; with its array of similar buttons, it looks like some sort of control panel. At Rs 4,200, the Leadtek Winfast TV Dongle will appeal to laptop users primarily because of its size. This guy told me he could arrange for a Hauppauge Win TV-PVR-150 for Rs 5,100. That card has all the features you'd want with a Media Center PC, and is digital.

I was impressed by the guy's resourcefulness; I remember wanting to buy a Hauppauge TV-Tuner myself a few months ago—I gave up because either people couldn't get it, or they were pricing it exorbitantly.

We also saw a Compro VideoMate Gold Plus M500 (analogue), which cost Rs 2,200. This is an older model from Compro; the bundle, while rich, contains older versions of software than what is currently available. The Compro VideoMate Gold was also on display at Rs 4,500. This is a full-size PCI card. Once again, it's a previous-generation product. It seems the latest Compro cards haven't gotten to Lamington Road yet.

Decision time for my friend... I had filled him in earlier on the CAS (Conditional Access System) issue doing the rounds. CAS will mean encrypted channels, which a regular satellite dish cannot receive. It will ultimately prevent exploitation of consumers by TV operators who have been hiking prices for no plausible reason. CAS will mean you'll have to invest in a set-top box and subscribe to individual channels (or a "package" of channels). Once conditional access comes into force, TV-Tuners without digital connectivity won't function properly because a set-top box uses a digital cable. Needless to say, your TV-Tuner remote also won't work—you'll control channels with the set-top box remote.

Considering that digital TV-Tuners are more expensive than their analogue counterparts, and that my friend wasn't willing to upsize his budget, we decided to wait a bit before buying a TV-Tuner. Yes, the digital ones won't really be affected by the CAS outcome, but my friend wasn't willing to splurge. We decided to sit this one out a bit till things become clearer. ■

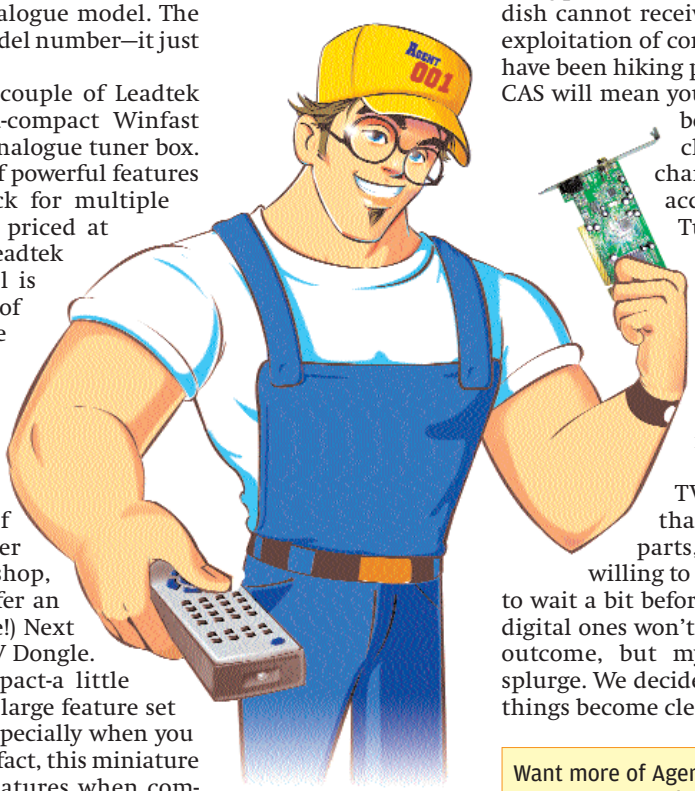


Illustration **Pravin Warhokar**

Want more of Agent 001? Turn over to read his answers to your buying questions

Lovely, Clear Display?

Q I want to buy an LCD TV; the viewing distance will be 8 to 10 feet. Kindly suggest what brand and size to buy. My budget is between Rs 75,000 and 1,00,000 for a 32-inch (or above). I'd also like to know the significance of features such as Dynamic Contrast Ratio and Full HD.

Amit Jain

Dynamic Contrast Ratio (DCR) refers to the ratio of luminosity of the brightest and darkest colours that a display can produce over time. Static Contrast Ratio (SCR) measures the luminosity values at a *particular* point of time. DCR values will be typically higher than SCR values because DCR simply neutralises the effect of the room lighting. DCR values are therefore inflated, and an LCD with an SCR of 3000:1 will outperform an LCD with a DCR of 3000:1.

Full HD simply means HD viewing at its (currently) highest possible resolution, which is 1080p. This equates to a progressive-scanned display consisting of 1920 x 1080 pixels non-interlaced. The next-best thing would be 1080i, that is, 1920 x 1080 pixels interlaced.

Samsung has some real beauties in their LCD TV range. The Bordeaux series, for one, proves that beauty isn't always skin-deep. I liked the body shape of the series; build quality is also very good. Choose between the LA32R71W (white) and the LA32R71B (black). Both cost around Rs 70,000 (Mumbai street price).

Can You Do Better?

Q I want to upgrade from W550i SE to a new handset. I have zeroed in on the K790i SE for its 3.2 MP camera and the loads of other features. Any other suggestions for the same price and features?

Vikas Maurya

You seem to primarily want a good camera phone. The Nokia N73, too, has a 3.2 MP camera, and outperforms the K790i when it comes to camera quality. The N73, too, is feature-rich, with greater application support mainly due to its Symbian platform. Another advantage is a better screen (320 x 240). Music playback quality is around the same on the two. The only negative as far as I can see is that the N73 will cost at least Rs 3,000 more, going by today's street prices. If you're willing to upsize your budget, go with the N73, else stick with the K790i.

Core 2 Duo Rules!

Q I am assembling a PC for animation work with some gaming on the side. I am stuck between two processors—the Pentium 630 and the Pentium D 820. Which would perform better? Could you also suggest a suitable motherboard?

Ganesh Badgujar

Of the two processors you mentioned, a Pentium D 820 would perform better on multithreaded applications or while multitasking, simply because it's a dual-core. Since you're building a new PC, I suggest you scrap the idea of both those processors, and invest in a Core 2 Duo instead. The E6300 (1.86 GHz) would easily outperform both of them while costing just a couple of thousand rupees more. A good motherboard to pair a Core 2 Duo with is the MSI 965P Platinum.

Ask Away!

Want a tech product, but don't know how to go about buying it? E-mail **agent001@thinkdigit.com** with your complete contact details, and he might answer them here! Please note that Agent001 only answers purchase-related questions in this space.

eXtinct Digital?

Q I have an Olympus FE-170 digicam. I am planning to buy an xD memory card. My budget is in the range of Rs 1,500 to 2,000. What capacity of memory card will I get within this price range, and what brand should I choose?

Neeti Shah

xD (eXtreme Digital) is patented; for this reason, there are a limited number of brands that make this type of memory. Only Olympus and Fujifilm digital cameras use xD memory as far as I know. I'd recommend Olympus branded memory. A 1 GB card will cost you Rs 2,300. A 512 MB will cost around 1,500.

Board Overload?

Q I use a 300-watt SMPS and am planning to upgrade to a 400-watt model, since I'm planning to soon attach one more hard drive and a CD drive. Will a higher power supply overload my motherboard? What brand should I look at?

Tushar Mathur

I assure you, using a higher-rated SMPS will not damage your motherboard in any way. The processor, motherboard, graphics card, memory, and other peripherals only draw as much power as they need. The reason people use higher-rated power supplies is that power supplies perform optimally when they are under a maximum load of 60 percent, after which their efficiency decreases. This is partly because most manufacturers state inflated output figures. Some 400-watt power supplies may actually be capable of supplying only 300 watts.

VIP is a brand known for their reliable power supplies. I'd suggest a 400-watt VIP PSU.

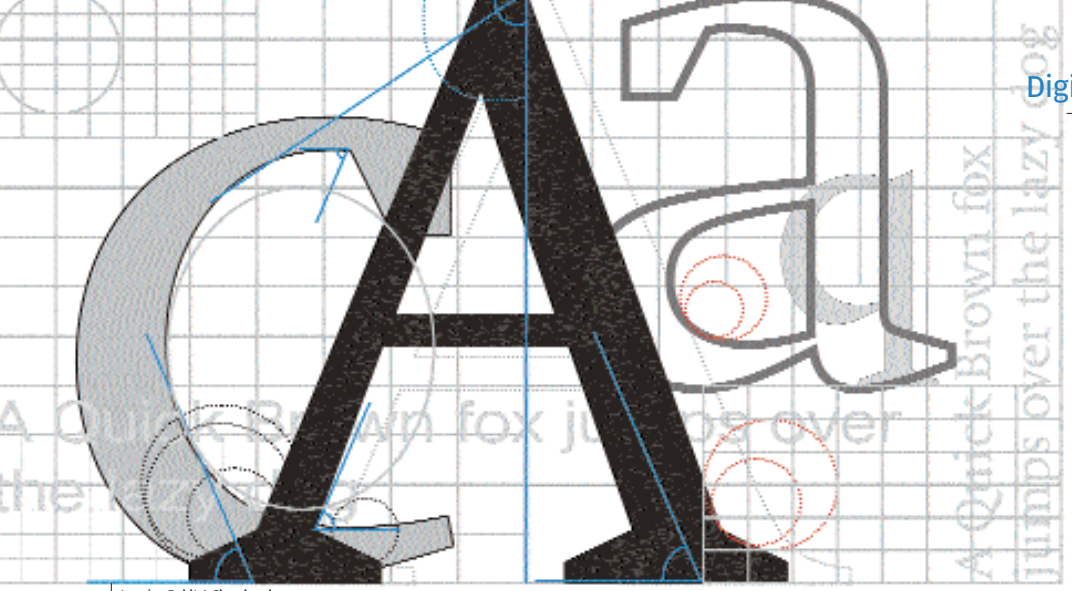
Bad Ad!

Q I am in the market for a laptop and have decided on the HP DV2119tx.

My usage is mostly office applications, but I want something stylish and responsive. Have I made the right choice, or is there something better you can suggest?

Shashank Jaiswal

The HP DV2119tx is a very decent laptop with a lot of features. You've made a wise decision as far as I'm concerned. I just checked on **www.hpindia.com**, where upon searching for the exact model I got a message saying its been discontinued. You might want to phone them to confirm. In case its not available there's a Dell Inspiron 9400 whose specifications are very similar. You can visit **www.dell.co.in** for more details. ■



Imaging **Rohit A Chandwaskar**

Fonts

How does text emerge in pretty

Samir Makwana

Fonts make possible the text of the magazine you're reading, and the text that appears on your computer screen, whatever the application and OS. Without them, we wouldn't have an issue to print every month.

Fonts are sets of *glyphs*—a glyph is a design or graphical shape given to characters—letters, numbers, symbols, ideograms, and punctuation marks. Seen another way, a font is a collection of typefaces along with characteristics like size, pitch, and spacing, along with the "rasters" for rendering the text. (A geometric data set with values assigned to a collection of pixels or dots is a raster.)

A typeface is the primary aspect of a font: it is a set of characters with a particular style. The basic difference between a typeface and a font is that a font is a character set with one typeface, design, and size, while a typeface is just a set of characters with the same style.

A font family is a group of fonts that exhibit similarities in design and that are to be used together. Different styles—as in size, weight, italics, bold, etc. lend variation to a font family. To take an everyday example, Arial is the font, whereas Arial Italic and Arial Bold are fonts in the Arial family.

Font Formats

Font files can be classified by formats as in the following.

Bitmap Fonts: These consist of a matrix of pixels representing glyphs. They are used for printing or screen display. Bitmap screen fonts are used in Linux consoles, Windows recovery consoles, and text editors, where there is lack of scalability. The font encoding for bitmap fonts is inferior to that of other fonts, so they lack in visual quality and flexibility. Being device-dependent, they can only be used at a particular resolution; a 100 dpi bitmap font will be displayed as 100 dpi even on a 1200 dpi monitor.

Vector Graphics Format: Vector Graphics define geometrically the shape or outline of a font. A font in this format contains a collection of vector images of glyphs. In vector images, geometrical formulas are used to represent images in computer graphics, so they can be stretched and resized. These fonts can be scaled to any size, which requires numerical processing—each font description represents innumerable characters. For example, Verdana 10-point is one font, and Verdana 14-point is another. PostScript and TrueType are popular "languages" for defining such "scalable" fonts.

PostScript Fonts: For electronic and desktop publishing, PostScript, a page description and programming language, is used. When the need for a common standard to integrate the GUI between the first Macintosh and laser printers arose, Adobe Systems came out with scalable Type 1 fonts in PostScript, which would render fonts (generate a display/image using computer programs) for both printer and screen.

TrueType Fonts: These were designed and developed by Apple, and are now used by both Apple's Mac OS X and Microsoft's Windows. The TrueType fonts that appear on the screen or on paper contain their own algorithms for conversion of text into pixels. For other types of fonts, a rasteriser is required: this is software that converts text into pixels, and comes with operating systems.

Rendering With Applications

Every font file has information in the form of mathematical data (basically, codes) assigned to each character. Since variations can be applied to fonts, it would become difficult to assign numbers to each character. So, standards such as Unicode, for example, where each character has a unique number on any platform, come into the picture.

For a particular font, a table is computed in which information is mapped about what glyph to use for a particular character code. (These tables vary according to computing platform.) Mapping from Unicode (for example) to glyphs, an index of glyphs is created. The application will render the respective glyph from the index according to the text, and the corresponding character is displayed on the screen.

The differences between vector and TrueType fonts lie in the way the glyph for each character is stored in the font file. In vector fonts, a glyph is a collection of line end-points that define the line segments Windows uses to draw a character in the font. In TrueType fonts, a glyph is a collection of line and curve commands as well as a collection of hints. "Hints" refers to information included in a font file to aid the rasteriser in scaling character outlines to various sizes.

As you can see, there's a lot more to be learnt about fonts—a good place to start is **www.microsoft.com/typography/default.mspx.**■

samir_makwana@thinkdigit.com

OLD WAY TECH WAY

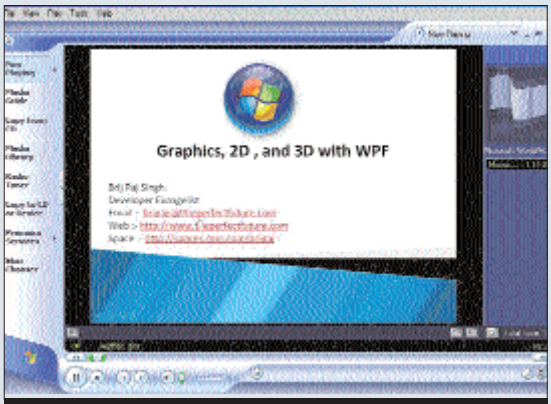
Attending A Conference Vs. Watching A Webcast Of One

As a journalist, I get at least two or three invites to conferences and events a day. Until cloning is leagalised, there's no way I can be everywhere at once! Thankfully, companies like Microsoft are leading the way in providing Webcasts of events, and I decided to try and figure whether this can really measure up to being physically present at an event.

Samir Makwana *(samir_makwana@thinkdigit.com)*



Actually attending an event...



...And watching the Webcast

1	I arrive at office, switch on my PC, watch as Outlook downloads hundreds of mails, patiently wait as the spam filter does its job, then begin reading. Today, an invitation to meet the Asia-Pacific head of a well known IT company, the session beginning in less than an hour... on the other side of town!	After I returned from the press conference, I got news of a Microsoft event. There was no way I could reach the event in time, but I wasn't too concerned. Thanks to Microsoft's Webcasts, I knew I wouldn't miss much of the event. I can always watch the Webcast a few days later!
2	I arrive only 20 minutes late, and hope no-one will notice me sneaking in. I take a seat in the back. Gosh, the sound system is terrible—can hardly hear a thing, and have to strain to see what's displayed on the screen. During a short recess, I find my way to an empty seat towards the front.	Vive le broadband! I'm registered for access to Webcasts, so I just log in, wait for it to buffer, and watch the recording. No worry about seating, and about not being able to see the screen or hear the speakers. I can decide on the volume for the audio, and I can resize the screen to suit my liking.
3	Question time. Moving to the front turned out to be a good idea, because I was actually able to get a few in. Once the event was done, we adjourned to the banquet hall where we got a few one-on-one sessions with company representatives. This informal setting is what I usually look forward to, because it's more like an interview, with two-way conversation rather than a one-sided lecture.	I can rewind, pause, and basically choose how I get my dose of the event. What I cannot do, however, is interact. Perhaps in the near future all events will be live Webcasts, with the ability to have a Webcam and be virtually present, asking questions. For now, it's pretty one-sided. At least I get to hear the speaker first-hand. Plus I can listen to responses to questions, making up somewhat for the lack of interaction.
4	Before I left to get back to the office, I met up with a few peers. Press events are quite the social gathering, and I exchange cards with some other journalists. It never hurts to make yourself known, as we sometimes help each other out with tips and ideas. Once I'm done, I file a report for the event back in office. Standard procedure, this.	There's a stark contrast with the Old Way. I'm hungry, and I have to fend for my own food. Secondly, the experience seems fake—I haven't actually *met* anyone. The advantage is that instead of writing a report, I transfer the downloaded Webcast to a file server and send off a quick e-mail informing my colleagues about its existence.
	Fun: **3.5/5**	Fun: **3.5/5**

And The Winner Is...

Straight-up, you will have to agree that nothing beats human-human interaction. No video recording will ever replace the experience of actually being there. However, instead of treating this as a competition between the Old Way and the Tech Way, I think the Tech Way is sort of an enhancement, or even a back-up plan, for the Old Way. We'd all much rather attend every event that happens out there, but things like money, physics, and the laws of space-time prevent it from happening. Thanks to the Tech Way, at least we don't have to completely miss out on everything. The verdict is that the Old Way, combined with the Tech Way is the best solution we've ever had. No winners here!



96 The Vista Dilemma



100 Cutting Edge



114 Mayhem Management

Tech Careers

Emerging Dimensions

The sheer range of industries it finds a place in, and the increasing demand for trained professionals, marks CAD/CAM as a very attractive career option

Samir Makwana

The Taj Mahal is an excellent example of architectural design. The design and construction of this marvel of a monument took years to complete—which is often quoted as testimony to its greatness. But we must note here, without disrespect to those architects long gone, that were they to have had access to Computer Aided Design (CAD) technology, their work would have been much easier, and execution would have progressed much faster.

CAD and its allied technologies—Computer Aided Manufacturing (CAM) and Computer Aided Engineering (CAE) has widened the horizons of organisations at every level. 10 or 15 years ago, designs of a product, vehicle, or building were drawn by hand using special geometrical drawing tools. It would take several weeks or even months for a drawing to get to completion.

Gradually, as the IT revolution hit every industry, developments took place in the field of CAD/CAM. ("CAD/CAM/CAE" is usually referred to as just "CAD/CAM", since CAE just involves tasks that involve analysis, testing, and diagnostics on products or assembly lines, for instance.) Computers began to be used for drafting. 2D modelling was initially developed to minimise the time consumed for drawing the design of a new product, optimising existing products, and deriving better results. When CAD/CAM technologies gradually shifted from 2D to 3D, advanced solutions for designing a product could be derived. Walkthroughs, simulations, and animations of products could be created, which made for more realistic designs.

CAD/CAM technologies are widely used in various industries such as auto-

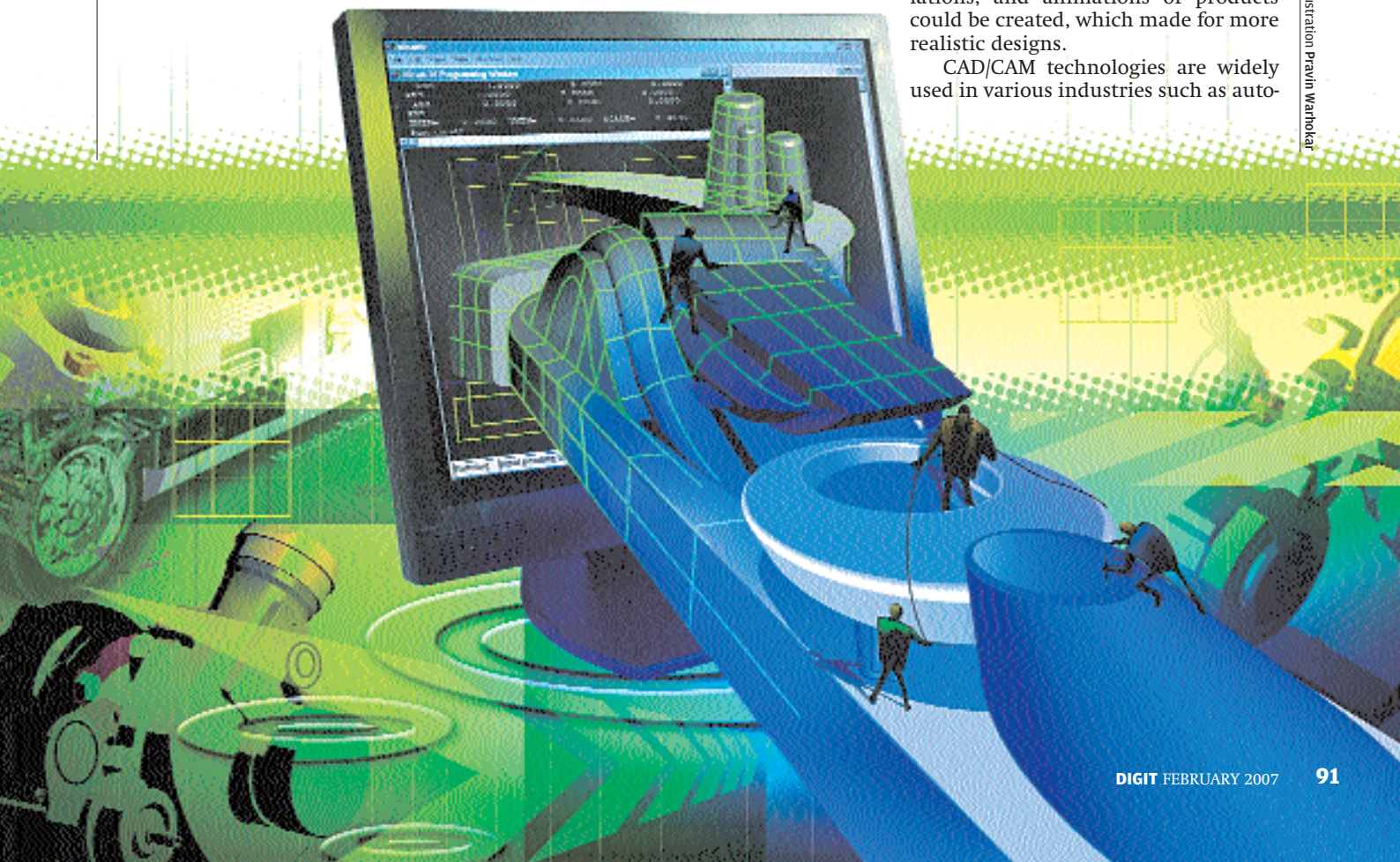


Illustration Pravin Warhokar

motives, consumer electronics, aerospace, and many, many more. Four vendors—Autodesk, Dassault Systemes, PTC, and UGS Corp. hold more than half the CAD software market.

Opportunities

Today, the use of CAD/CAM tools has become a necessity in organisations over industry verticals such as automotive, aerospace and utilities. According to a study by Booz Allen Hamilton—a global strategy and technology consulting firm—and NASSCOM, called *Globalization of Engineering services—The Next Growth Frontier for India*, an additional $40 billion in opportunities will be created from the offshoring of engineering services for the Indian IT Industry by 2020, which implies that the demand for qualified engineers and skilled professionals will rise in the near future.

"With a global engineering shortage, CAD/CAM skills are in great demand. It is important that all students understand the culture of different countries and regions that the companies work in. It might involve a product that is designed in Europe, with programming in Australia, a mould base created in Korea, raw material from Canada, and manufactured in India," says Ved Narayan, vice president, Asia Pacific Operations, SolidWorks Corporation, who develop and market 3D CAD technology software tools.

In An Organization

The CAD/CAM technologies used across various industries can be broadly divided into Architecture, Construction and Infrastructure, and Manufacturing and Engineering. Different industries such as Automotive and Aerospace come under Manufacturing and Engineering. Today there are a number of super-specialised courses available. By pursuing a super specialised course and having a keen interest in a particular domain, one can look for opportunities in three broad categories:

Designer/Professional

After the education and training acquired from academic institutions, one can work with CAD/CAM tools to design in 2D and 3D, animate models, design simulations of a 3D object similar to a desired physical object, and model solids and surfaces. Also, on the construction, architecture, and infrastructure side, one is required to create walkthrough animations to give an idea of nearly exact dimensions of the desired outcomes. Involvement here is more on the design of the product, and in the case of CAM, in deriving codes for Numerical Controls and Computer Numerical Controls.



"Initiatives of industry-academia collaborative efforts to standardise the level of education and closer exposure to industries will help in meeting the demand of a skilled workforce in the long run"

Rohit Biddappa
Marketing manager
Parametric Technology (India) Ltd

Consultant

An individual can be a consultant draughtsman, designer, 3D solid modeller, etc. only after experience of at least five to seven years in an industry domain. One needs knowledge of the manufacturing process flow of different industries.

Instructor/Trainer

An instructor or trainer for CAD/CAM tools must have a lot of knowledge and experience of working with those tools, and also industry exposure. Such professionals get hired by academies and training institutes as well as by those involved in organising corporate training sessions.

Prerequisites

The entry ticket for a CAD/CAM job would be an engineering degree. One must have a bachelors or masters degree with specialisation in the mechanical, electrical, or electronics branches. Those with specialised qualification in industrial design are also likely to be recruited across industry verticals. Diploma holders (mechanical, electronics, electrical, industrial design), too, are absorbed.

Candidates with mechanical engineering degrees are preferred since their curriculum allows specialisation in CAD/CAM in the final year. Civil engineers, architects, and computer science graduates, too, can get absorbed in the respective industries as in construction, architectural, and the application programming development domains. For CAE, a post-graduate or doctorate-level degree is necessary.

Engineering education can be pursued from a college that is accredited by the National Board of Accreditation (NBA) under the All India Council for Technical Education (AICTE). In the recent past, issues were raised over educational practices at engineering col-

In A Nutshell

CAD, CAM and CAE—The Difference

The use of computer-based software and hardware tools is made for the design, planning, analysis, manufacturing, and simulation of a product or construction. These tools help in saving time and cost of producing a prototype for testing and analysis, which resulted in its adoption amongst various industry verticals.

Computer Aided Design (CAD) means the use of hardware and software tools by design professionals, engineers, and architects for design, development, modification, and optimisation of products before the actual manufacturing starts. There are various software by which CAD can be carried out—for example, PRO E, IDEA, CATIA, AutoCAD, and more. These tools are used extensively in the automotive industry, where the design of a model is tested by computer simulation rather than physical prototype testing.

In Computer Aided Manufacturing (CAM), use of specialised computers and CAD tools is made to control, monitor, and adjust the machining tools in a manufacturing unit. A Computer Numerical Control (CNC) machine is programmed after adding raw material to it, and the CNC machine will process the raw material according to the instructions coded in the programming language (G-code) for Numerical Controls and CNCs.

Computer Aided Engineering (CAE) refers to the use of computer-based analysis tools for optimising engineering tasks at every level of a product's life cycle. The tools are used for engineering tasks such as analysis, design and simulation, planning, diagnosing, validating, and repairing. Tasks such as stress analysis of a component or assembly line, product or process optimisation, mechanical event simulation, and more come under CAE.

leges and deemed universities, for which was announced the assessment of deemed universities. The accreditation from NBA was made mandatory long ago, in 2004. So before seeking admission in a deemed university or Regional Engineering College, one should check for accreditation.

Institutes offering courses specifically for product design and industrial design cover a curriculum that includes the use of CAD/CAM tools. There are many institutes that offer undergraduate and post-graduate courses in product design and industrial design—such as the IITs, National Institute of Design (Delhi and Ahmedabad), MIT India, and more. Several public as well as private institutes offer short-term and long term courses in industrial design and product design.

Skills

"The ability to think in three dimensions and comprehend complex geometric shapes in space is a must. Also, good observation and imagination powers help in visualising mechanical movements and animations. Knowledge of different manufacturing operations and floor assembly operations is an added asset for an aspiring candidate," says Prasad Shetye, vice president and head—Engineering Services, Patni Computer Systems, who offer engineering services.

Organisations that develop and market CAD/CAM/CAE software tools also recruit developers. "All the programming skills and attributes required in a software programmer are required. The programmer must be able to program the software keeping in mind the industry the software is being developed for. Besides, aspirants must also have strong visualisation powers," says Debjani Roy, Head of Human Resources—India, Bentley Systems, who develop engineering and design software as well as CAD software.

Industries Where CAD/CAM/CAE Tools Are Extensively Used

Architecture, engineering, and construction
Architecture
Building engineering
Civil Engineering and Infrastructure
Construction
Roads, Highways, Water and Sewer systems
Mapping and Survey
Mechanical Engineering
Automotives
Aerospace
Consumer Electronics
Machinery
Ship Erection
Bio-mechanical Systems
Electronic Design Automation (EDA)
Electronic and Electrical (ECAD)
Digital circuit design
Manufacturing Process Planning
Industrial Design
Software Applications Development
Apparel and Textile CAD
Fashion Design

Recruitment

The recruitment process for CAD/CAM jobs is not radically different: there is an aptitude test, and tests to assess skills with drawings and working with CAD/CAM software. At the interview, personal and intrapersonal skills are assessed.

After recruitment, one undergoes a short-duration training programme. This covers



basic induction, exposure to the production and services the organisation is involved in, hands-on designing skills with the CAD/CAM tools used, exposure to the organisation's business culture, and project-specific orientation. As the person goes higher on the rung, he is trained to do high-end designing work for products and structures.

Industry-Academy Collaboration

Academic institutions need better exposure association with the industries employing their engineers. Education and training must benefit the industry and the students as well. The students will thus be able to receive better industry exposure through summer-winter internships offered by many companies.

Organisations using CAD/CAM exclusively in their business model are now looking to join hands with academies that offer education and specialised training in CAD/CAM. Initiatives such as internships, campus placements, summer-winter projects, training programmes, and sponsoring R&D projects have now started, due to joint efforts by the industry and academies.

CAD/CAM software vendors provide consulting and guidance to the educational bodies on how to establish and maintain computing labs and keep them up-to-date with the latest software.

CAD software vendors such as Autodesk, SolidWorks, and UGS Corp. have their own software-specific courseware and certifications. Information about authorised training centres and resellers can be found at the Web sites of CAD software vendors.

Roles

People in different industries are given different designation during their tenure with an organisation. However, the nature of the work remains the same at each level.

Entry Level

Trainee Designer/Engineer: The job here is to do everything right from documentation of a project design to the actual design using CAD tools. At this stage the individual gets the maximum time to get his hands on the CAD software tool on a platform (Windows, Linux, or UNIX). Drafting, solid modelling, surface modelling, finishing, and all the other basic tasks involved in designing a new product, constructs and walkthroughs are among the main activities that are done.

During this tenure, the individual gets exposed to all areas of the project. One can expect to start with remuneration as low as Rs 1 lakh to 3 lakh per annum, depending upon organisation and industry. It takes roughly one to three years to advance to the next level.

Senior Designer/Engineer: Here, one validates the work of the Trainee Designer or Engineer, and works in one's own area of specialisation. People at this level are responsible for development of key areas as well as the growth of the trainee engineers. Responsibilities include the validating and analytical part of the designs. The Senior Designer or Engineer reports to the Design Lead or Engineering Lead respectively. Remuneration is between Rs 3 to 5 lakh per annum. It takes experience of three to five years to advance to the next level.



"People who have the skills to work on high-end designing projects are required to possess the respective domain knowledge. That helps them in understand how the product will eventually evolve from the raw material through production."

Anil Sondur
Business Unit Head,
Innovation Design
Engineering,
TATA Elxsi

Middle Level

Design Lead, or Lead Designer or Engineer: As a person reaches this level, the obligations and nature of work incline towards the management side. A Design or Engineering Lead is responsible for the team of designers and engineers under him. He works on a particular project and keeps a check on its progress. All the changes or finishing work required is under his influence. At this level, remuneration is between Rs 5 and 7 lakh per annum. The time needed to advance to the next level is, again, three to five years.

Project Manager or Project Lead (Design or Engineering): Responsible for the entire project. He interacts with clients and understands their needs and suggested changes. Orders regarding changes are passed on to the Design Lead. He manages the application part of a particular CAD technology or tool for a project, and keeps a check over the project performance at every level. Remuneration ranges from Rs 7 to 10 lakh per annum, and advancement to the next level takes four to six years.

Top Level

Design / Engineering Director: An individual at this level is involved in taking strategic and managerial decisions upon a project. The nature of work here is mostly managerial. The decision of selecting a CAD technology and the tools to be used for the projects is taken by the Design/Engineering Director. Remuneration would be more than Rs 10 lakh per annum.

A Final Word

According to a study by Booz Allen Hamilton and NASSCOM, engineering services could help to create 1.5 to 2 lakh additional jobs by 2020—up to 1 lakh with the multiplier effect. The global spending in engineering services will grow from $750 billion to $1 trillion by 2020, and India will raise its market share from 12 per cent in 2004 to 30 per cent by 2020. The total offshore engineering services are expected to grow from $150 to $225 billion, out of which 25 per cent will be realised by the potential talent pool and existing work force in engineering services.

Demand for CAD/CAM professionals who have specialised knowledge of a domain will grow. To breed them, Indian industries need to invest in infrastructure, academics, and the workforce now to reap the benefits by 2020.

Be it the consumer electronics, aeronautical, automotive, or any other industry where CAD/CAM/CAE tools are used, the demand for qualified professionals will always be on the rise. The return over investment in this career option are rewarding, since the offshoring of engineering services is already picking up.■

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The Vista Dilemma

It's out—but is it what you should be switching to at work?

Nimish Chandiramani

As we write this, obsessing over Windows Vista is the order of the day. Will it kill your PC? How much better than XP is it, anyway? Will the Aero interface ever stop looking pretty? When it launched to businesses on November 30, nobody expected its sales to turn out they way they did—Vista surpassed Windows 2000's first-month sales, and came quite close to XP's. The appeal for the home user is quite obvious, but what is driving businesses to run after the new OS?

THE BURNING QUESTION

If you've been reading the news, you've no doubt read Microsoft's proud "Vista is the most secure Windows yet," and Symantec's sceptical "Yeah, right." Vista's focus on security can't be argued, though—from soliciting the US National Security Agency (NSA) for help, to the ridiculous number of features to protect you from the Bad Guys™. Here's what you get:

UAC

User Account Control (UAC) is designed to prevent potentially malicious programs or operations from running without your authorisation. When turned on, UAC verifies even file renames and deletes—the take-no-chances approach. In the first preview and beta releases, this feature was perhaps the most annoying thing about the OS—imagine having to go through seven steps just to rename a file! It evolved to be less of a pain by RC2, but it's still lacking one feature we'd have thought critical—a "remember my choice for this operation" check box. The lack means that you'll have to authorise even a "trusted" program every time you run it—or just switch off UAC, of course. We're hoping to see more customisability for this feature in an update. Overall, it's a well-intended feature, and will even allow network administrators more control over user rights.

Windows Defender

This is a re-hashed version of Microsoft Anti-Spyware, and is a surprisingly impressive part of Vista. The interface is simple, and you can monitor your system very granularly. We expected something as barebones as Windows Firewall, but this tool is as good as third-party anti-spyware.

BitLocker Drive Encryption

As the name suggests, BitLocker encrypts the data on your hard drive and blocks access to it unless authenticated by a Trusted Platform Module (TPM)—basically a microchip that is used as a "key" to your data. The TPM may be a chip on your motherboard or even a USB key—so if, say, your laptop is lost or stolen, there's no need to worry about your sensitive data. Oddly, though, this feature isn't a part of Windows Vista Business—you'll have to buy Enterprise or Ultimate for it. We're told Microsoft's research pointed more towards it being a feature for large enterprises.

IE7's Protected Mode

Under Vista, IE7 will run in its own low-privilege application environment, and ActiveX controls are downloaded into a virtual directory—if malicious ActiveX controls do get in, they run in a virtual environment where they can't do any harm. There's also the phishing filter, which should prevent you or your employees from losing your sensitive information to online frauds.



Verdict

Out of the box, Vista is undoubtedly the most secure Windows—but *nobody* uses Windows without third-party security software, and this is where the snags come in. Vista's PatchGuard technology prevents any software getting into its kernel, including trusted security software. As a result, any software that *does* manage to break into the kernel has full access to the system, and has nothing to fear from security tools—and Symantec reports that this has already happened. Microsoft has agreed to rectify this, but it's something we won't see as of

Imaging **Shrikrishna Patkar**
Photograph **Jiten Gandhi**

this launch. To the paranoid, this is a deal-breaker, and the most compelling reason to hang on to Windows XP for now.

BETTER USE

Windows Vista comes with a few tools to enhance your productivity at home and in the office, and the interface has been given an overhaul—we're not just talking about the visuals.

Windows Collaboration

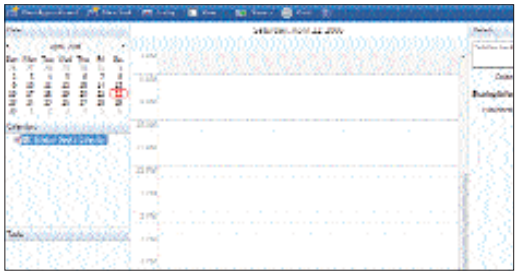
The replacement for NetMeeting, Windows Collaboration is a peer-to-peer application that lets up to ten people start a collaborative session over the office network. Jointly work on desktops and files, make presentations, and pass notes about the boss' attitude privately—all without needing a conference room. It's capable of ad-hoc wireless networking—setting up a network even in the absence of an access point—this will require a shift to IPv6, though.



Windows Collaboration—so much more than NetMeeting

Windows Calendar

Similar to OS X's iCal, Windows Calendar builds Outlook's PIM features right into the OS—schedule your own tasks, co-ordinate with others on the network, and even synchronise with online calendar services like Google Calendar. One giant leap for personal productivity.



Windows Calendar—a productivity application which was long overdue

The Interface

It isn't just about the cool glassy effects and Flip3D—Vista's new interface polishes a lot of the kinks we had to deal with in XP. Buttons like "OK" and "Cancel" that forced you to read the entire message are now replaced with more meaningful text—like "Install" and "Don't Install"—and some 200 unnecessary message prompts have been eliminated. *Every* task now has a taskbar button, so there's no more hunting for prompts or file copy dialog boxes. The Search box in the new Start menu is a much more evolved version of Start > Run—you don't need to know the exact name of the EXE anymore! Search is also integrated into all Explorer windows—you can tag files with keywords and even filter document searches by author. The result—you *never* need to remember a folder path ever again!

Verdict

The new interface also has a large number of subtleties you're bound to miss on first use, but over time will give you a richer and smoother experience. Couple that with the new productivity tools and your workday will pass in a more streamlined manner than you can imagine.

THE PERFORMANCE FACTOR

Unless all your office PCs are brand new and have at least 1 GB of RAM and a dedicated graphics card, you're in for an upgrade—if you want Aero, that is. While this would make home users frown—buying Vista and not using Aero is like stripping the paint off a new car—it's hardly a priority for business users.

You'll also have these two features to help kick up performance:

SuperFetch

SuperFetch caches commonly used files and programs in available system memory, so over time, you'll find the OS becoming more responsive. It also has some "intelligence," loading files that it anticipates will be needed soon.

ReadyBoost

If you've got a large-capacity Flash drive, you can use it as your SuperFetch cache and free up main memory. It's slower than RAM, but much faster than reading the cache from the hard disk. ReadyBoost is also optimised to minimise the number of read/write operations it makes on your USB drive, keeping in mind that Flash drives are reliable only for a limited number of read/write cycles.

Verdict

While using Vista, we did notice significant performance improvements with ReadyBoost and there's potential for more. Don't fall for the "you'll have to upgrade your hardware" line—even without Aero, the productivity is all there, and that's what matters more.

If It Ain't Broke?

When Windows 2000 launched, offices were desperate—Windows NT 4's shortcomings were too many, and Windows 98 wasn't advisable for the workplace. Today, Vista launches in a completely different environment—Windows 2000, XP, and Server 2003 are all solid platforms (yes, despite the daily security fixes), and there is no pressing *need* for something new. Even so, it's doubtless a better OS and the upgrade is practically inevitable. Price isn't a factor, either—except for the Ultimate Edition, it's going to cost the same as corresponding versions of XP.

If you've just been through an upgrade cycle for your office, or don't plan on one any time soon, don't let the Vista launch rush you towards it—let it come as a logical step ahead. By then, any kinks in the OS will have been addressed as well. ■

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"That you'll need an upgrade for Vista is a myth—you may not get Aero, but you'll have access to every feature that boosts productivity, and that's what matters more to the professional"

Rishi Srivastava
Director, Windows Client Business Group
Microsoft (India)

Cutting

PC peripheral and component prices keep falling, and laser printers are riding the trough of the price wave. Our test features the best personal laser printers, and should help you decide on one



Sanket Naik

Not long ago, laser printers were considered the devices that would one day suck inkjet printers dry. Laser printers had their distinct advantages; speed, the ability to output smudge-free printouts, and durability. However, sky-high pricing meant that only businesses and those with deep pockets could afford them.

Over the years, both inkjet and laser technologies have evolved, and it's increasingly hard to differentiate those once-distinct advantages that lasers exhibited. Subtle differences still provide the necessary demarcation, but these are based on application areas and not on technical grounds—such as photo printers, mobile printers, etc.

Colour printing, which was once only inkjet domain, is now a much-battled segment, thanks mainly to the lower initial investment for a colour laser, and also the lower running costs.

Regardless of whether you buy a laser or an inkjet, what you're looking for is speed, quality, and economy. However, there's a lot more to printing than these three basic requirements: the cost of the consumables is the first addition to this list. Another oft-forgotten factor is the manufacturer's service and support offerings, which are important because printers are prone to failure as a result of neglect, overuse, and ageing. This test will aim to take a more holistic, and thus more real-world look at the printing solutions on offer.

We received printers from all the top retailing brands—alphabetically: Brother, Canon, Epson, HP, Lexmark, Samsung, and Xerox. Due to some unfortunate technical problems with Epson's printer, we were unable to test it. This test covers primarily entry-level laser printers, and we'll take a look at the mid-range offerings in next month's test. However, apart from the entry-level mono lasers tested here, we also have four colour lasers tested individually.

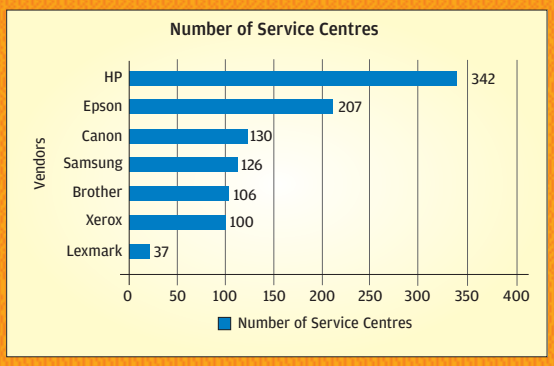
Imaging Pradip Ingale
Photograph Amrut Patki

Edge Lasers!

Understanding The Market

If you are a regular *Digit* reader, you're used to us reviewing products based on features, performance, and price. However, for this test, we will deviate from our regular methodology, because printers cannot be compared to, say, graphics cards. Before buying, it's important to survey the market and get your facts right: performance, though important, is just one piece of the puzzle. The other pieces are made up of the cost of the cartridges, service issues, and downtimes. Here's a quick look at the printing market realities for India.

HP, Canon, Xerox, Samsung, Epson, Lexmark, Brother, Konica-Minolta, and Wipro are the major vendors in the laser printer business. HP was one of the first companies to bring printing products to India, and continues to dominate the market. Samsung, Xerox, and Canon come next in line in terms of market share, followed by the minnows—Konica-Minolta, Wipro, Epson, Brother, and Lexmark. Now you might wonder why we're talking business, which should only matter if you're buying shares, but it does matter! Remember that the leading products generally offer more in terms of service centres as well as easier availability of consumables and spare parts.



Service Support Infrastructure

As in the graph, HP has the highest number of service centres across the country, which means better penetration across the country and hence a higher probability that a HP service centre will be located near your office or home. Epson and Canon come in at second and third place respectively, while Lexmark has the lowest number of claimed service centres.

Outlets For Consumables

With printers, you constantly need to buy consumables, and the ease at which they're available ensure minimum downtimes for your printing solution. For this reason, it's important that the manufacturer have many authorised retail outlets. With around 1,500 authorised consumable outlets, HP has a definite advantage anywhere in India. We're discounting the unofficial channels for all companies, which is rather impossible to authenticate. Xerox, with 300 outlets, also has a good presence. All the other vendors hover around the 150 mark, which means they will have limited reach, and though you will never have any problems finding their consumables in major cities and the metros, you might face problems in smaller cities if they do not have any resellers there.

That said, almost all the vendors have a toll-free number you can call and have consumables delivered to your doorstep. This is a great value-added service, and you should check for such options from all vendors for your city.

The Warranty

For the Indian consumer, the warranty plays an important role in the buying decision. With printers, the importance is an order of magnitude higher, because these are generally the most abused peripherals at home or at work, and are the most prone to failures.

There are two facets to every warranty: the term of assurance and the type of warranty offered. Now most competing brands make sure the term of warranty is the same, so, for example, you will find that many manufacturers offer a "lifetime" warranty (which translates to five years for IT hardware). However, when all companies offer the same warranty, you need to look beyond the terms of assurance and look at the type of warranty.

For printers (and most IT products), this is generally a unit-replacement, on-site, or carry-in warranty. Unit-replacement is obviously the best option, and the rarest, because if anything goes wrong, the manufacturer gives you a replacement instead of repairing the unit you have. This saves on the downtime that you will face if your printer is being repaired.

On-site is the next best thing, especially for printers. Since most laser printers are quite bulky and heavy, you do not want to have to lug it to a service center (as is the case with a carry-in warranty). With an on-site warranty, a technician comes to your residence or office and fixes the device, or takes the trouble of taking it to a service center and then returning it.

Of the manufacturers featured in this test, Xerox, Samsung, Brother, and Lexmark offer a one-year warranty cover each, while Canon offers two

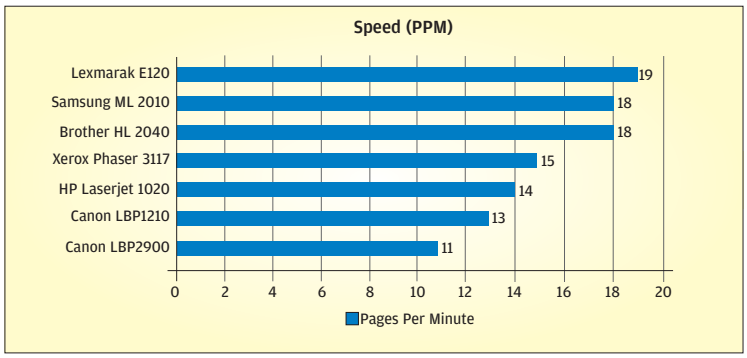
How We Tested

All the printers were connected via USB to a PC with an Intel Pentium 3.2 GHz CPU, 512 MB of DDR2 memory, and a 120 GB Seagate Barracuda 7200 rpm hard drive running a fresh install of Windows XP SP2. We formatted and reinstalled Windows for every printer to make sure none of the previous printer's software or drivers would cause any conflicts. We used 75 g/sm JK Paper for the text prints, and Berga 100 g/sm paper for the photo prints.

All the tests were carried out in both Normal and Best modes. We logged the time each printer took to print the first page, and also calculated how many pages a printer could print in a minute. Quality, being a more subjective test, was conducted by multiple reviewers to minimise errors in judgement. All the prints were compared to each other, and all the printers had maintenance schedules run prior to printing, using the bundled software maintenance kit.

This time round, we also awarded points for type of warranty, prices of consumables, and availability of support and service as well as consumables across the country.





years. All these companies have on-site warranties. HP is the only company that provides a lifetime, unit-replacement warranty.

Start Your Toners

Moving on to the test, we had one printer each from Brother, Samsung, Xerox, HP, and Lexmark, and two printers from Canon. On the technical front, all these printers were evenly matched and all fell below the Rs 10,000 mark we set for the SoHo environment.

Design

There are two aspects to the designing of a product—aesthetics and function. A perfect balance of these two parameters is essential for the product to look good without hampering day-to-day usability. Canon's LBP-2900 is the smartest-looking printer—compact, curved edges, yet functional in all possible ways. The single-piece paper tray is fitted flush with the body.

HP's 1020, Samsung's ML-2010, Xerox's Phaser 3117, and Lexmark's E120 looked almost identical. All these have a vertical profile design and hence take up less desk space. The input paper trays are completely retractable and fold back into the body; however, the output trays are a little flimsy.

Brother's HL-2040 and Canon's LBP-1210 have a wider profile and require more desk space. While the Brother has a paper cassette that fits snugly with the body, the paper cassette on the Canon LBP-1210 juts out occupying additional space.

Overall, Canon's LBP-2900 takes the "best-looking printer" crown, closely followed by the HP 1020 and Lexmark E120.

Features

Printing resolution decides the crispness of printouts, and 600 x 600 dpi is more than enough for regular documents. All the printers featured exactly this resolution, and though some offered 1200 dpi through software extrapolation, we'll ignore this just as we ignore digital zoom for cameras!

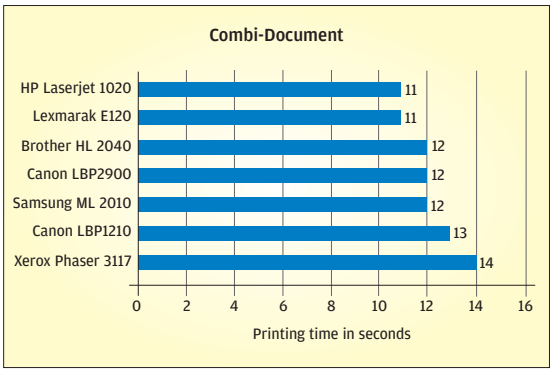
Extra memory is always good, and all the printers come with 8 MB of memory, except the Canons and HPs, which only provide 2 MB. Unlike PCs, however, extra memory doesn't guarantee better performance.

The input paper tray capacity is very important, and only the Brother and the Canon LBP-1210 can accommodate 250 sheets; the rest only manage 150. Of course, for typical SoHo use, no-one expects you to be printing anything more than a 100 copies at a time. All the printers also feature a manual feeding tray with paper

How To Buy

- First figure your monthly print run—if it's above 3,000 pages, you're looking at the wrong segment. Consider a high duty-cycle printer instead.
- If you're looking to add a printer to a network, and share it amongst a group, look for a printer with an Ethernet port. This will save electricity, as it does not need a print server PC to be always on.
- Check out which brand has the nearest service centre. If you can get hold of their number, call them up and ask them their turnaround time.
- Call up your regular stationery guy and figure out what brand of consumables he generally stocks. Alternatively, call the toll-free numbers (we have collated them for you) of all manufacturers and see how much time will it take for them to provide you any consumable.
- Before buying a printer, make sure you get a demonstration, and insist on being shown the manageability provided by the accompanying software. Manageability refers to general servicing such as cleaning of toner, remote management of printer, and other features.

	Toll-Free For Service	Toll-Free For Consumables
Brother	NA	NA
HP	1800-4257737	1800-4254999
Canon	1800-3453366	1800-3453366
Lexmark	1800-224477	1800-224477
Samsung	1800-110011	3030-8282
Xerox	1800-4254525	1800-1801225
Epson	1800-4250011	1800-4250011



capacities ranging between one and 10 sheets.

Brother's HL-2040 and Canon's LBP-1210 were the only two printers with both USB and parallel ports. While some may think of this as backward compatibility, others may think of them as older-generation printers! All the others sport the USB 2.0 interface.

The Lexmark E-120 was the only printer in this group to offer controls in the form of Cancel and Ready buttons. The Brother HL-2040 has one large button for Ready, and the Samsung ML-2010 has one for saving toner. Canon's LBP-2900 has a button to resume printing if the printer runs out of paper. The HP Laserjet 1020 has no buttons or controls on the body.

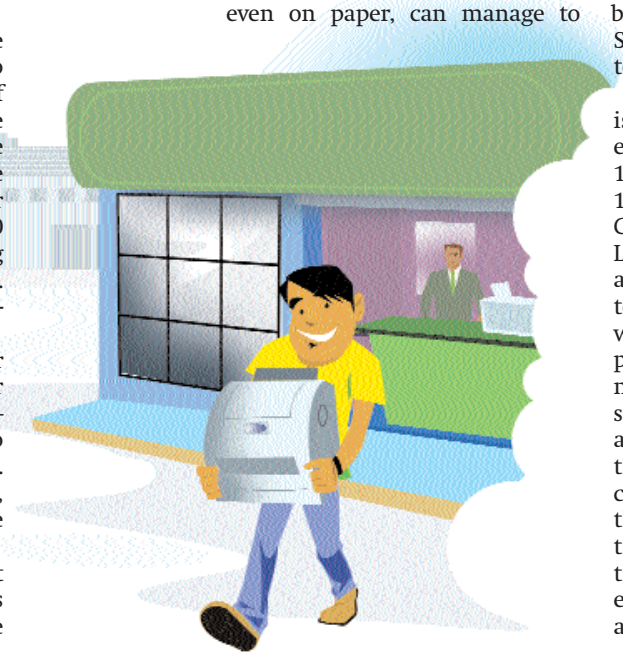
As indicators go, the Brother HL-2040 has four, one each for toner, drum, paper, and Ready—quite useful. The rest have two indicators—Ready and Error. Canon's LBP-1210 has just one, which will not help you while troubleshooting.

Generally, printers don't come with data cables, but this time, almost all of them came with a USB cable in the package. The Quick Setup guides are comprehensive, and it's a no-brainer when it comes to installing any of these printers—all drivers installed smoothly, and Windows recognised them all without problems. Brother has a nice flash animation that shows how to install a new printer—useful for a first-time laser consumer. For open source fans, Brother is the only one that shows them some love by providing links to Linux drivers.

HP and Canon rule the roost as software goes. Canon's status window is fabulous, and provides a good amount of detail—when printing multiple pages, it shows the progress, the page number of the current job, etc. Lexmark's software is also quite informative, but their one-size-fits-all approach might leave a layman confused—they seem to have developed generic software, which displays features that aren't even present on certain models.

Additional features, such as toner saving, sleep mode, watermarking, etc., are available with almost all the printers. Duplexing (printing on both sides) is a great way of saving paper, but none of these printers support automatic duplexing, so you'll have to manually turn pages over to save a few trees.

We didn't do a cost-per-page test, but we did note the claimed figures for the toner cartridges, and calculated the claimed cost per page. None of these lasers, even on paper, can manage to print a page for less than a rupee—real world costs will always be higher. The Brother HL-2040 beats every printer here, thanks to its relative high output and low cartridge price. Canon's LBP-2900 was the most expensive, and each print will cost you about Rs 2. All the others work out to about Rs 1.50 per page.



Laser printers are known to be noisy, and the oldest one we have, an HP LaserJet 6L Gold, sounds like a Gattling gun when it's printing. But the times have changed! All of these printers ran quietly, with only the paper mechanism breaking the silence once in a while.

Performance

A printer's performance is measured in terms of speed and quality. Generally, there isn't much variations in terms of speed, but quality does differ wildly.

PPM

Manufacturers use PPM (Pages Per Minute) to display speeds. All the years we have been testing printers, no printer has ever lived up to its claimed ppm speed, and we were eager to see if that elusive achievement would be met this time.

Three printers claimed 20 ppm: the Brother, Lexmark, and the Samsung. The Lexmark E-120 came the closest to the claimed speed by delivering 19 ppm—a superb achievement! This machine is fast, and delivered the first (usually the slowest) print within 9 seconds, breaking all earlier records. The Samsung and Bother were fast too, delivering 18 ppm.

The Xerox Phaser 3117 promised to print 17 ppm and delivered 15, whereas the HP Laserjet 1020 delivered one less than the 15 ppm it claimed. The two Canons were the slowest—the LBP-2900 managed only 11 ppm, and the LBP-1210 did a little better with 13 ppm. Overall, this was still a good show by all the printers, and this shows that not only are printer engines speeding up, manufacturers are also being more realistic with their claims. Of more significance to us was the fact that all the printers were able to break the 12-second barrier for the first printout, which is generally the most important aspect of printing.

The Litmus Test

Our Point-Size document is a simple document with one sentence in varying fonts. Lexmark's E120 set the pace by delivering a printout in less than 9 seconds—a new record. The HP, Brother, and Canon LBP-1210 tied for second place with 10 seconds. The Samsung and Xerox had the highest spool times, and were therefore the slowest for the first print.

The Acid Test

Our combi-document is a complex document that all printers hate. It is a 35 MB file that contains different types of text,

BEST BUY digit
FEBRUARY 2007

Scoreboard — Personal Laser Printers

BRAND	Brother	Canon	Canon	HP	Lexmark
MODEL	**HL-2040**	**LBP-1210**	**LBP-2900**	**LaserJet 1020**	**E-120**
Features					
Resolution (dpi x dpi)	600 x 600	600 x 600	600 x 600	600 x 600	600 x 600
Interface (USB, Parallel, Network, etc.)	USB and Parallel	USB and Parallel	USB	USB	USB
Input buffer (Kbytes)	8 MB	2 MB	2 MB	2 MB	8 MB
Paper capacity (pages)					
Input Tray	250	250	150	150	150
Output Tray	100	125	100	100	50
Manual Input Tray (sheets)	✔/ 1 Sheet	✔/ 10 Sheets	✔/ 1 Sheet	✔/ 1 Sheet	✔/ 10 sheets
Toner Saving	✔	✔	✔	✔	✔
Duplexing (Auto/ Manual)	✔/ Manual	✔/ Manual	✔/ Manual	✔/ Manual	✔/ Manual
Accessories					
Data cable	✔	✔	✔	✔	✔
Power cord	✔	✔	✔	✔	✔
Interface cable	✔	✔	✔	✔	✔
Troubleshooting guide	✔	✔	✔	✔	✔
Quick Setup guide	✔	✔	✔	✔	✔
Warranty and Service					
Warranty (Number of Years)	1	2	2	Lifetime	1
Type of warranty	On-site	On-site	On-site	Unit Replacement	On-site
Number of Authoried Service Centres	106	130	130	342	37
Number of Authorised Consumable Outlets	150	NA	NA	1,500	49
Cartridge Yield					
Cartridge Yield (Number of pages)	2500	2500	2000	2000	2000
Cost of Cartridge (Rs)	2760	3995	3995	2950	3057
Approx. Cost Per Page (Rs)	1.10	1.60	2.00	1.47	1.53
Usability (Out of 10)					
Driver Installation	7.5	6	8	8	7
Status Window	5	9	9	6	6.5
On-machine Controls	One Button	None	One Button	None	Two buttons
Number of Indicators on-machine	Four	One	Two	Two	Two
Performance					
Speed Test (in seconds)					
Pages Per Minute (Claimed v/s Actual) (Draft Mode)	18/20	13/14	11/12	14/15	19/20
Point-Size Document @ Normal Mode	10	10	12	10	9
Point Size Document @ Best Mode	15	12	13	12	9
Combi Document @ Normal Mode	12	13	12	12	11
Combi Document @ Best Mode	13	14	13	12	11
Photo-Target Document @ Best Mode	12	10	11	12	10
Image Quality Test					
Point Size Document @ Best (Out of 10)	7.5	7	7	7.5	7
Combi Document @ Normal Mode (Out of 20)	13.05	13.55	12.75	13.7	12.75
Combi Document @ Best Mode (out of 20)	12.85	14.35	11.1	13.75	13.05
Photo-Target Document @ Best Mode (Out of 15)	9.35	9.45	11	11.4	9.8
Final Scores					
Features (Out of 35)	19.85	19.36	19.02	19.62	18.65
Performance (Out of 50)	31.34	32.56	30.70	33.76	33.31
Price (Out of 15)	**7.69**	**5.46**	**6.00**	**8.57**	**8.58**
Grand Total (Out of 100)	58.88	57.38	55.73	61.95	60.54
Prices (Rs)	**7,800**	**10,995**	**9,995**	**6,999**	**6,996**
					
	+ Fast Print Speeds - Limited service and support options	+ Good print quality - Expensive	+ Stylish design - Expensive	+ Good balance of speed, quality, and pricing - Relatively slow	+ The fastest printer - None in particular

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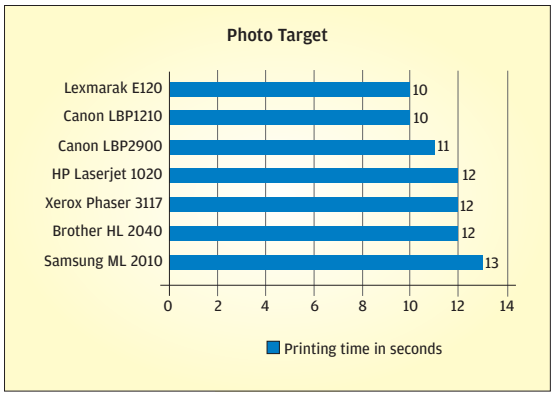
Samsung ML-2010	Xerox 3117
600 x 600	600 x 600
USB	USB
8 MB	8 MB
150	150
100	50
✔/ 1 Sheet	✔/ 1 Sheet
✔	✔
✔/ Manual	✔/ Manual
✔	✔
✔	✔
✔	✔
✔	✔
✔	✔
1	1
On-site	On-site
126	100
NA	300
3000	3000
3800	4200
1.26	1.40
8	7
7	7
One Button	One Button
Two	Two
18/20	15/17
11	11
11	11
12	12
12	14
13	12
7	6.5
12.9	11.75
13.05	12.7
10.4	9.95
18.66	18.14
31.81	30.36
10.00	**13.33**
60.47	61.83
6,000	**4,500**



+ Fast print speeds
- Relatively slow handling large files



+ Attractive pricing
- Just reasonable print quality



lines, gradations, etc. We tested each printer in both Normal and Best modes. In Normal mode, the Lexmark E120 beat everyone by printing the document in just 11 seconds—another record smashed. The HP, Canon, Brother, Samsung, and Xerox were tied for second place. In Best mode, the Brother took 5 seconds more than it did to print in Normal mode; all the others actually printed both Normal and Best in the same amount of time.

A Trip To Hell

Although most of you will not print photographs on a mono laser printer, yet still we decided to test for this. The photo test also pushes the limits for the printers in terms of file size, the amount of detail and gradients.

The Lexmark E120 broke speed records again, taking just 10 seconds to print. The Canon LBP-1210 sat up all of a sudden, posting the same time as the Lexmark.

The Canon LBP-2900 was just 1 second behind. The Brother, HP, Samsung, and Xerox were not far behind.

Overall, it's no surprise that the Lexmark E120 won the race, the HP LaserJet 1020 coming in second, and the Samsung and Xerox coming in just behind the HP.

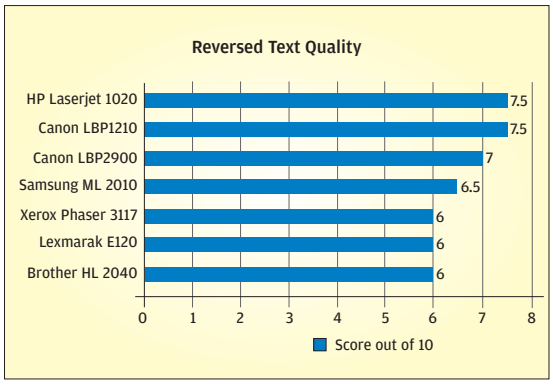
Quality

In the point-size document, the HP LaserJet 1020 and Canon LBP-1210 were marginally better than the competition. The differences were only visible in the smaller font sizes—10-point and below. The Brother HL-2040, Canon LBP-2900, and the Lexmark E120 were at par, and Samsung's ML-2010 was as good—but lost out in the really small font sizes. The Xerox Phaser 3117 just couldn't match the other printers when printing small fonts.

With the combi-document, HP's LaserJet 1020 and Canon's LBP-1210 produced the best results. Finer details were printed perfectly by both printers, toner saturation in greyscale gradation was perfect, and reversed text reproduction was absolutely stunning. The Brother HL2040 and Samsung ML-2010 were tied for second spot, and the Lexmark and Canon LBP-2900 were just behind at third. Though the Xerox Phaser 3117 was good, it failed to impress as much as the rest did.

In the photo document, the HP LaserJet 1020 was again the best, followed very closely by Canon's LBP-2900. What got us hooked on HP's printout was the detailed reproduction in darker areas, where all other printers lost out, due to the toner being too dark. Finer details and highlights were reproduced perfectly by both the HP and the Canon LBP-2900. The Samsung ML-2010 came in next with print quality marginally better than that of the others, but was no match for the HP and Canon.

Overall, in terms of quality, the fight was between





the HP LaserJet 1020 and the Canon LBP-1210—the Canon lost because it did not do as well as the HP in the photo test. We must say, however, that if you don't plan on printing photographs on your mono laser, you'll be hard-pressed to find any differences between the print quality of the HP and that of the Canon LBP-1210. The Samsung put up a decent performance; so did the Brother HL2040. The Lexmark may have been the fastest, but couldn't match the HP and the Canons in terms of quality. Despite being a good printer, the Xerox Phaser 3117 ended up looking very ordinary because of the stiff competition from the others.

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HP LaserJet 1020
Impressive overall!

So Which One?

This was the toughest conclusion we've had to make in years. In terms of speed, the printers are less than 2 or 3 seconds apart, and really, you're not going to notice an extra second or two of waiting. However, what made this decision really hard was the fact that we had to spend hours testing, retesting and staring at our results to find subtle differences in the prints. Finally, we took the prices into consideration, which we thought would help us decide, but that ended up giving us a headache, too!

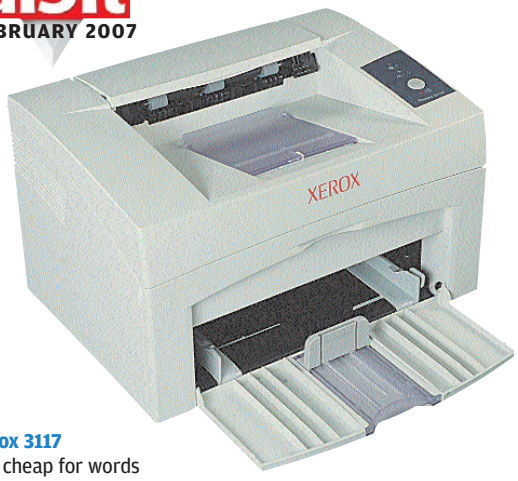
The Xerox Phaser 3117 costs a mere Rs 4,500. We daresay this is the cheapest laser printer on the planet! This is even more of a feat when you consider that the toner for the Xerox costs Rs 4,200.

We've given up trying to figure how Xerox manages this financially-speaking, and decided to award it the *Digit Best Buy Silver*. If all you need is a printer, cheap, and don't care too much about service and support, toner cartridges, and the like, the Xerox Phaser 3117 is the obvious choice.

The HP LaserJet 1020 is the *Digit Best Buy Gold* winner. Good print speeds, impressive print quality, and decent pricing puts HP on the winning track. When you consider the lifetime, unit-replacement warranty it offers, the easy availability of consumables, and toner prices, there's really no need for us to make the decision—the HP wins hand down!

The Canon printers lost out due to high pricing and high cost per page. The Samsung ML-2010, Brother HL2040, and the Lexmark E120 were equally good.

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Xerox 3117
Too cheap for words

If your own research shows that you will not have any problems with servicing, consumables, and warranties, a Canon is almost as good a buy as the HP.

Contact Sheet — Laser Printers

Brand	Company	Phone	E-mail	Website
Brother	Lipi Data Systems Ltd	022- 27683030	kpai@lipidata.com	www.lipidata.com
Canon	Canon India Pvt Ltd	0124-4160000	nasir.mohd@canon.co.in	www.canon.co.in
HP	HP India Pvt Ltd (Mono Lasers)	0124–2566 111	uday_bhat@hp.com	www.hp.com
HP	HP India Pvt Ltd (Colour Lasers)	0124–2566 111	nkapoor@hp.com	www.hp.com
Lexmark	Lemark India Pvt Ltd	022-26057744	sandeepk@lexmark.com	www.lexmark.com
Samsung	Samsung India Electronics Pvt Ltd	011-41511234	anupam.k@samsung.com	www.samsung.co.in
Xerox	Xerox India Ltd	0124-2561930	d.bernard@xerox.com	www.xerox.com

COLOUR LASER PRINTERS

Samsung CLP-300

Decent overall



Samsung's new CLP-300 colour laser is touted as the smallest colour laser in the world, and we agree with that claim. This smart-looking printer has been designed the ground up as an entry-level colour laser for professionals.

The printer has just a single button and four LED indicators—one for each toner. The paper tray holds 150 sheets and juts out from the bottom. The toner cartridges are small cylindrical tubes and slide into their respective grooves—the black cartridge is bigger; good, considering it will be used more. The photo conductor drum can be removed, and the printer uses a carousel mechanism—each colour has to be developed on the same drum in four different loads.

The printer can be connected to a PC via USB, but you can also get the CLP-300N, which adds an Ethernet port for network printing. Installation was a breeze, and all you get is drivers and a status panel called Smart Panel. The status window is fairly informative, and provides realistic toner usage. The driver is fairly comprehensive and has numerous options to play around with.

Samsung claims a speed of 16 pages for black, and the printer achieved 14 ppm. Our laser printer test document, consisting of six pages, was printed in 1 minute and 40 seconds—and hence falls just short of its claimed 4 ppm for colour. The photo document took 36 seconds to print; the delay can be attributed to the carousel mechanism the printer uses. The Combi-document was printed in just 29 seconds—a fair speed.

On the quality front, the Samsung CLP-300 saturated the black, killing vividity. Reverse-text (yellow on black) showed traces of black. Finer details were reproduced perfectly, except in the areas immediately surrounding dark areas of the printout. Colour gradation was also good, but we've seen better...

The printer costs Rs 15,500, and the four cartridges retail at Rs 10,500. The black toner is rated to give 2,000 pages, but the colour cartridges manage only 1,000 pages. The cost per page is similar to what's on offer from competing vendors.

Overall, Samsung's CLP-300 offers decent print quality, acceptable speeds, and reasonable pricing. However, keep in mind that this printer will not do justice to graphics-heavy work.

Specifications

16 ppm (black); 4 ppm (colour); 300 MHz; 32 MB memory (max); 24,200 pages duty cycle; USB 2.0; 150-sheet paper capacity; manual duplexing

Price: Rs 15,500

RATINGS	
Features	★★★½
Print Speed	★★★★
Print Quality	★★★½
Value for money	★★★½
Overall	★★★½

HP LaserJet 2600n

Good for small workgroups



The HP LaserJet 2600n is an entry-level colour laser printer with an Ethernet port; a version without inbuilt Ethernet is also available.

The LaserJet 2600n is fairly bulky, but clever design makes it look compact. The paper cassette is located at the bottom, and fits snugly inside the body. It can hold up to 250 sheets; you can increase this by adding an optional paper cassette. A manual paper feed lets you feed in a single sheet at a time.

The 2600n is targeted at workgroups, so it has a two-line LCD display. This is placed at an awkward angle; you'll have to bend to be able to see it, and it's not backlit. It's handy when setting up networking, or while troubleshooting. Apart from drivers, you also get Business Marketing Toolkit—links to How-Tos for marketing material, tutorials on Microsoft Office products, and more.

The front of the printer pops open to reveal the cartridges. Installation is simple. The developer unit is on the inside of the front panel, so you have to be careful not to drop anything on it.

HP claims 8 ppm for black printouts, and this one managed between 6 and 7. The same ppm speed is claimed for colour, but our six-page test document took 1 minute and 5 seconds to complete—reasonable for this category of printers.

The 2600n delivered crisp test printouts, and even 2-point text was sharply reproduced and perfectly legible. With the Combi-document, finer details were spot on, and even colour gradations were near-perfect. In the photo-target document, only skin tone lacked a little.

Cartridges cost Rs 13,515. The black cartridge is rated at 2,500 pages, and colour cartridges at 2,000. Cost per page works out to Rs 1.20 for black and Rs 1.70 for colour. Decent print speeds, good quality printouts, and reasonable pricing and running costs making this a good printer for small workgroups.

Specifications

600 dpi; 35,000 pages duty cycle; 8 ppm (black and colour); 16 MB memory (max); USB 2.0, Ethernet 10/100, 250-sheet input paper cassette; manual duplexing

Price: Rs 19,999

RATINGS	
Features	★★★★
Print Speed	★★★½
Print Quality	★★★★
Value for money	★★★½
Overall	★★★★

Canon LBP-5000

Too expensive



Canon's LBP-5000 is priced at Rs 29,999, so it doesn't fit in the entry-level segment. It's more of a mid-range colour laser. Canon has taken a minimalist design approach, which is OK, but we would have liked an LCD. The two-tone colour is nice, and the clean lines help hide its bulk. The 250-sheet paper tray fits snugly.

Eight LEDs indicate different problems such as paper jam, toner empty, warnings, etc. There are no buttons; this is strange, considering the lack of an LCD. The driver is comprehensive, though, and additional features such as watermarking, manual duplexing, etc., are certainly there. Instead of basing printing on dpi, Canon uses presets such as Graphics, General, etc., and a help box to inform you when to use them. Canon's status window is still the best across the printers we tested.

While installing the drivers, our machine hung, but a restart fixed it. The LBP-5000 has a single-pass engine, so paper jams are few. Canon claims 8 ppm for both black and colour, and our tests revealed speeds of 7 ppm for black and 6 ppm for colour—commendable. The Combi-document took 23 seconds to print.

In terms of quality, the LBP-5000 delivers results as good as the HP LaserJet 2600n. 2-point text is clearly legible, reverse text (yellow on black) printed well, colour gradations were smooth across colour bands, and even the photo document was flawlessly reproduced with minimal loss of detail or tonal deviation.

Cartridges cost Rs 17,680. The ratings say you will get 2,500 black prints, and that colour cartridges are good for 2,000 prints. The cost per page works out to Rs 1.60 for black and Rs 2.24 for colour, which is really expensive.

The Canon LBP-5000 delivers on speed and print quality, but loses out badly on price—in terms of initial investment as well as running costs.

Specifications

600 dpi; 8 ppm (black and colour); 8 MB memory plus system memory used; 250-sheet paper cassette; USB 2.0; optional Ethernet

Price: Rs 29,999

RATINGS	
Features	★★★½
Print Speed	★★★★
Print Quality	★★★★
Value for money	★★★½
Overall	★★★★

HP LaserJet 2605dn

Quality print but slow



The LaserJet 2605dn is HP's upmarket model from the 2600 series, but with additional features. It looks identical to the LaserJet 2600n, though under the hood it adds a duplexing unit.

The paper cassette holds up to 250 sheets, and you can manually feed in a single sheet at a time. The duplexing capability can be activated automatically via the driver, and is unchecked by default. Duplexing helps reduce paper usage and is useful when printing, say, an e-book.

Installation was child's play, and took no more than ten minutes. HPs toolkit allows a user to administer the printer and set various options such as paper type and size, toner density, etc. We had no problems setting it up on a network either—a network address is directly added using the onboard controls or via the toolkit. There is a plethora of options for managing the printer remotely—great for system administrators.

HP claims a speed of 12 ppm for black, but it only managed 8 in our test. The six-page colour document took 2 minutes to complete—really slow. The Combi-document took 34 seconds to print, and the photo document took 48 seconds. Overall, the LaserJet 2605dn was a really slow printer.

What it lost in speed, it made up for in terms of quality. The text document printed flawlessly, and the Combi-document saw every element reproduced as displayed on our screens. This is also the first colour laser printer we've seen that matched an inkjet's ability to reproduce skin tone correctly.

The LaserJet 2605dn is priced at Rs 26,999, and the total cost of the cartridges comes to Rs 13,515. According to the rated yield of the cartridges, the cost per page works out similar to that of the LaserJet 2600n—reasonable!

The HP LaserJet 2605dn has good features, is reasonably priced for the features on offer, and produces excellent printouts. The only gripe we have is the relatively slow print speed; except for that, the 2605dn is a good buy.

Specifications

12 ppm (black and colour); 8 MB memory plus system memory used; 250-sheet paper cassette; USB 2.0; optional Ethernet

Price: Rs 26,999

RATINGS	
Features	★★★★
Print Speed	★★★
Print Quality	★★★★½
Value for money	★★★½
Overall	★★★★

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Internet Instructors

With India emerging as a knowledge hub of sorts, we look at a successful, Indian-origins e-learning firm in the US, which provides coaching to school and college students

Ram Mohan Rao

Young Indian and far-east Asian students in the United States are sincere and hard-working, they pay their credit card bills in full each month, and they're very good at maths. There are some SAT and GRE statistics to validate that last point, but it is, ultimately, a stereotype. As it happens, it's a very popular one: Americans seem to genuinely believe that this demographic is "smart," as they put it. A rather nice image to possess, actually. It doesn't hurt.

In fact, it seems to have helped the cause of TutorVista (**www.TutorVista.com**), an online tutoring and test-prep company founded in Bangalore and brought to the United States in late 2005—services are now also offered in Britain. They provide one-on-one coaching to K12 and college students, both undergraduate and graduate, in a variety of subjects, and charge considerably less than the competition—in effect making such instruction that much less of a luxury. That's "bachelors level" and "post-graduate level" in Indian terms. "K12" refers to Kindergarten through to the 12th standard in Indian terms.

It can't have been easy for an Indian firm to have achieved a credible position in the US market. But the stereotype helped.

Ask Krishnan Ganesh, founder, chairman, and CEO. His team's initial research in the US—without which they wouldn't have spent "a single dollar" on the project—gave them the go-ahead because of "the 'nerdy' image and success of Indians in the school and college education system in the US."

Desirables

Going beyond what helped and what didn't, what makes for good e-learning at the K12 and college levels? First and most important, tutors must be competent and well-trained, and sensitive to students' needs. Which leads to point number two: one-on-one coaching is immensely desirable. Even outside of e-learning, it's always been sought-after by parents, and it's traditionally expensive. With the Internet, as Ganesh and co. have proved, it need not be, and that's #3—affordability. Then, the interface and session scheduling should be student-friendly. And last but not least, when you cut across continents, student and teacher understanding each other becomes an issue, small or big.

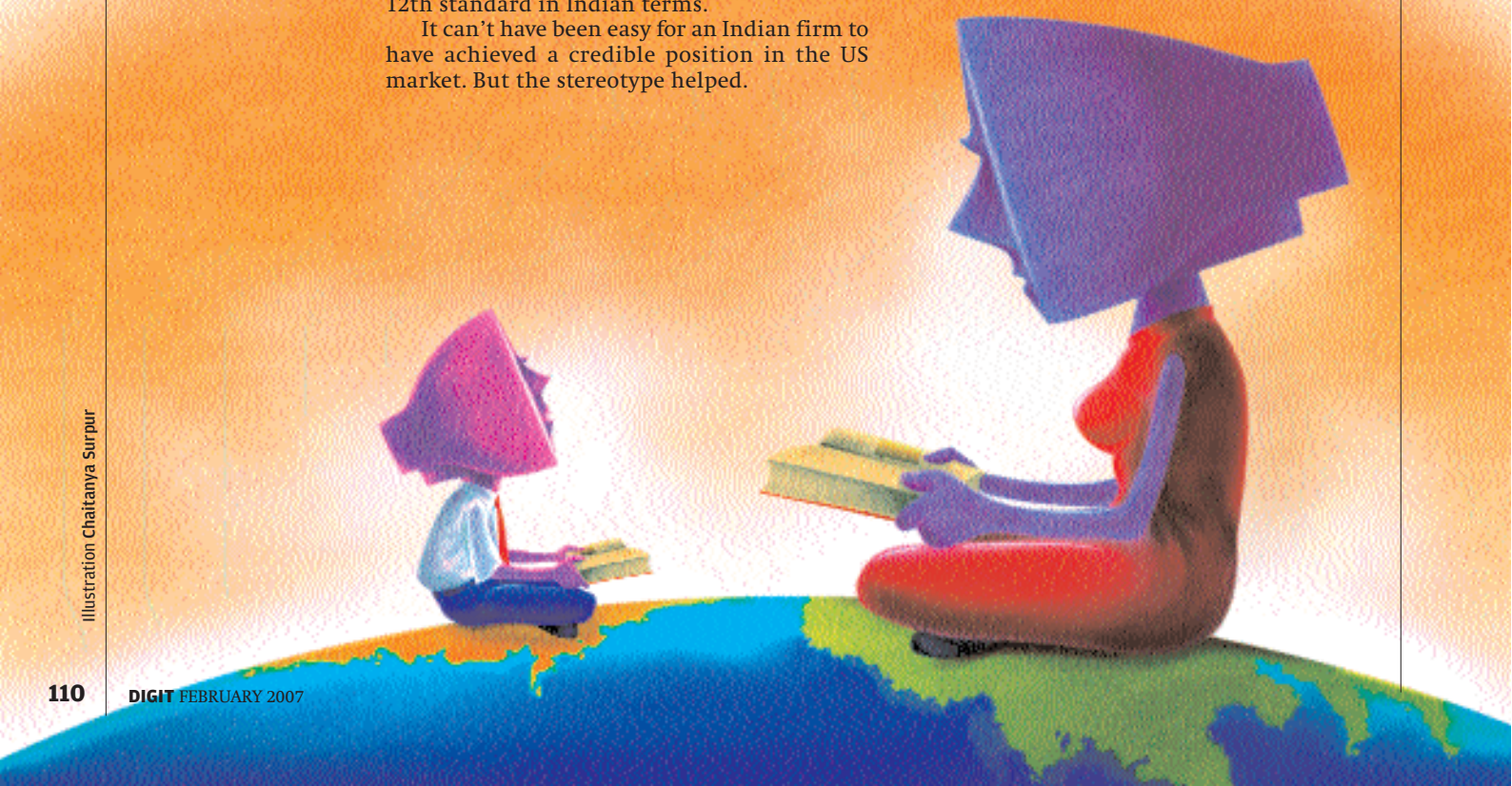


Illustration Chaitanya Surpur

How It Works

We've perhaps jumped the gun a bit: how does one-on-one e-learning work? It's simple, really. At TutorVista, for just one example, the student chooses a plan—either $19.99 per hour of coaching, or $99.99 per month for unlimited tutoring. Then, an evaluation test determines the strong and weak areas of the student, and therefore, what precisely the learning sessions will attempt at achieving. In fact, TutorVista says their programmes are customised to ensure more time is spent targeting students' problem areas.

Students can then schedule sessions for any time they want; as the company says, "it's like having a tutor in their home or dorm 24x7." Any parent's dream.

During the session, student and teacher use headsets, and what is called a "whiteboard." This is an area of the screen where both can write on; whatever is written by one will be visible to the other, and vice-versa. Writing is accomplished via a graphics tablet. The student may also choose to use IM; communication thus happens via keyboard, mouse, tablet, microphone, and headphones. In addition, students have access to worksheets, lessons, practice tests, question banks, and animations. There's also a toll-free fax number so students can show tutors printouts of their work.

Coming to the Internet connection, one needs a high-speed line, and these are found at libraries and "civic centres" all over the US.

This Side Of The Book

We said earlier that tutors must be competent and well-trained. TutorVista ensures this. Experienced tutors with graduate degrees and the appropriate teaching credentials are considered, and are subsequently trained by TutorVista. There is an extensive online recruitment process that includes testing and interviews. A job offer is made only after would-be tutors complete training and the certification process. Recruiting and hiring a tutor "takes anywhere between three to five weeks," Ganesh says.

The company's tutors are located in India, the Philippines, and Hong Kong. That is how TutorVista manages to keep its prices so low. Ganesh makes no bones about it: "Prices are lower than (that of) the same service from the US or Europe since we leverage global resources from geographies wherein teaching resources are readily available and allow lower cost due to lower cost of living." Get them from where they come cheap, train them to world standards, and you have a winning formula.

Outsourcing as in call centres may have gotten a bad name in some areas: in a 2003 edition of *Dr. Dobb's Journal*, the editor-at-large cautioned the readership to call customer support (for software products) at hours when they would get "real, qualified engineers." He didn't go so far as to specifically say "American," but we got the idea.

It's very different here. Ganesh relates: "We did research with 25 parents and kids in the US before deciding to start this service and investing our first dollar on this project. The results were positive and gave us clues to what

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Serving Society Through IT

*Subject to availability of stock.

the consumers thought. Two thirds were neutral, and one third were actually positive about being taught by Indians. These 25 were not Indian / Asian-origin US citizens: they were local US citizens. One of them said they would *never* let an Indian coach their kid on sports, but on education, he welcomed it!"

Old Way, Tech Way

Here in India, we're used to classrooms bursting at the hinges of the door—perhaps 120 or 150 students packed into a lecture hall. It's different in America, for a variety of reasons. Undergraduate classrooms typically host about 30, 40, or 50 students. Note that this is an average figure; the actual numbers vary wildly—from 15 to 150 by some accounts. At the graduate level, you might even see 10 or 15 students in a class. Or sometimes even five!

Then there's the T-word: practically all 10th and 12th-standard students here "go to tuition," as we say. There's a similar concept in the US—"learning centres." At typical learning centres, a few students congregate in a room with a teacher, computer, and projector, for lessons specifically geared towards improving grades. The key word here is "few," and that's why tutoring at learning centres is expensive.

One-on-one coaching is even more expensive. Make no mistake about it: grades are as important in the US as marks are here, even if the education system is vastly different. And like we mentioned, TutorVista makes one-on-one affordable. That is Ganesh's vision: "We want to make personalised education affordable, and that our service should be part of every home's monthly budget through a subscription based, 'always-on' kind of model."

The 1:1 ratio is the ideal, and it has always been. We don't need to explain why. As in so many areas, technology has been thrown at the problem, and one-on-one might one day become the norm instead of a luxury. TutorVista deserves mention even if only for making personalised coaching affordable to the majority of Americans.

But Ganesh goes a step further: he says Internet learning can be more effective than even face-to-face learning! It is appropriate here to also quote Roger Schank, director of the Institute for Learning Sciences at Northwestern University: "The best things technology has given training are the possibility of one-on-one for every learner, the ability to simulate, and the chance to try stuff out and fail in private without the fear of ridicule from other students."

I Say Tuh-Mah-Toe, You Say...

Banking call centre employees, as an example, are taught American and British accents partly to make it sound to the caller that he or she is speaking to a native English speaker, which makes him or her more comfortable. But when it comes to something more personal and more long-term like education, it's a more vital question—that of accent not interfering with the learning process.

TutorVista trains tutors not only with regards to accent, but also in communication skills. Also, says Ganesh, the fact that the talk time by the tutor is only 20 per cent of the total session time makes it less of an issue. "Most of the time, the student is either thinking or writing on the whiteboard or speaking. Also, since the same tutor works with the student, student and tutor get used to (each other's) accents."



"Internet learning can be more effective than face-to-face learning"

Krishnan Ganesh
Founder, chairman, and CEO
TutorVista

In addition, at the time of recruiting, TutorVista also ensures that the tutor's accent is good enough for him or her to be able to communicate with US and/or UK students.

Accent is a relatively small issue the company faced. Ganesh sums up some of the others thus: "We deliver real-time, live sessions to thousands of students and to thousands of tutors concurrently. Handling this requires a strong-scalable platform, which is unique. We had to build this from scratch. Also, being a consumer brand, we needed to establish an image in the minds of consumers, unlike other e-learning companies that work with the corporate customer rather than directly with consumers."

Now And Onward

In November 2006, TutorVista was named the exclusive online tutoring provider for Microsoft's MSN Encarta online education portal. The deal calls for MSN Encarta to actively market TutorVista's services throughout the Encarta portal.

Then, TutorVista offers *free* online tutoring sessions to public school students of all ages in America's top 10 poorest, most rural counties. "We opened TutorVista in the US because we saw school systems failing America's poorest rural students, teachers and parents on a number of levels," explains Ganesh.

How is the market for one-on-one tutoring poised to grow? Exponentially, according to Ganesh. But it "needs the right business model. We believe that subscription-based mass-market pricing will be the key for future growth." TutorVista also has plans to venture into the Australian, Canadian, and, yes, the Indian e-learning markets. They are also looking at launching an English-language service for Chinese and Korean students. With India getting to be known as an "educational hotbed," there's good reason to believe their new ventures will find acceptance.

We'll be keenly watching to see how one-on-one e-learning for school and college kids might work out in this country. TutorVista may have worked it all out for American and the other markets, but it's a little different here. Parents' perceptions, Internet bandwidth and connection performance, and very high cost sensitivity come to mind.

Still, marks will be marks; what ultimately matters is performance on paper. If the firm can work out how to boost students' exam performance given the ridiculous levels of competition here—with precision levels reaching one mark per 500 or more—it'll be one more success story. ■

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Mayhem Management

Enterprises have had them for ages, but there's a lot to be said for an office domain, even if you don't span a hundred acres

Nimish Chandiramani

Imagine this: an employee finds a useful piece of free software on the Internet, installs it, and spreads the good word among his colleagues. Everyone installs it, and all goes well until the software vendor comes a-knocking at your door, asking you to cough up for the corporate license (the free version is only for home user)—and this is the first time you're even hearing about this program!

You've probably never even been close to such a situation, but if you're managing twenty or more workstations individually, you're inviting it. There's a simpler way to manage the PCs on your network than running around to each one of them—you need to set up a domain for your office.

What Is It?

The traditional LAN workgroup is a peer-to-peer (P2P) network—all computers are at the same level, where no one machine can dominate another, even if it's to apply a security patch. So every time there's a new security fix for Windows XP (and that's quite often), you have to either go to each PC and install it yourself, or hope that the user has seen the update notification and installed it himself—neither of which is a hassle-free proposition.

In a domain, one computer—the *Domain Controller* (DC)—is responsible for the network, and the users logged on to it. For instance, it maintains a central database of users, so when someone logs on to his machine, it's the domain controller that authenticates him and sets his security privileges. Once someone is authenticated on the domain, he has seamless access to all the resources on the network that you want him to—all with a few clicks here and there.

Ingredients

To set up a Windows domain, you'll need Windows Server 2003—the Standard Edition works for most—at Rs 25,000, it comes with a 25-user license, with additional licenses at Rs 1,250 each. It will scale up as your company grows, and it even supports multiple domains should the need arise. For companies with 75 users or less, we recommend Windows Small Business Server (SBS) 2003—at around Rs 26,000 for five client licenses, it's a somewhat limited version of Server 2003, but comes bundled with Microsoft Exchange Server to manage your e-mail, and SharePoint Server for collaboration, both of which are very useful (and very expensive) products that have to otherwise be purchased separately. Before you invest in it, you will need to take a good look at the way your company is growing—SBS supports a maximum of 75 clients,



so cutting corners now might not work out to be profitable if you're going to grow beyond that soon.

If your company's backbone is Linux-based, you can also set up a domain controller using Samba—it effectively manages both Windows and Linux machines. Though the feature set isn't as elaborate as that of Windows Server or SBS, it does give you the essentials.

In The Jungle

At the heart of your Windows domain is the Active Directory (AD), which organises all the information about your network. Everything falls under one of three categories—users, resources (printers, file servers, and so on) or services (like e-mail). All these objects, their properties and their access rights, and other rules collectively fall under what is known as a *forest*. The forest comprises of one or more trees, each comprised of one or more domains. The Samba equivalent works in roughly the same way, but can't replicate the Windows AD in the features department.

The AD is broken into a *Schema* which contains details about all the types of objects (called classes) you have on the network (users, workstations, printers and so on), a *Configuration* which stores the forest's structure, and a *Domain* which contains all the objects that have been created—physical representations of those in the schema.

Knowing all the technical jargon isn't particularly important, but you do need to plan your forest properly—making drastic changes to the schema can cause crazy things to happen in the domain, especially if it involves removing an object class. A good idea is to plan your network's hierarchy to reflect the hierarchy in your company—each department as a separate user group, for instance.

So you've planned the network and shelled out for your new server and OS—now what?

The Safe Network

Like we mentioned before, the Domain Controller maintains a central database of users in your company, and it records every user logon, so you know exactly who's getting on to your network and from where. Their access rights are the same no matter which machine they use, so one team member could log on to another's workstation for, say, an official document, without being able to change any important settings or access any protected data.

User access rights are controlled through the very powerful Group Policy Editor—the name is indicative of its function (we've talked about this tool under Windows XP in *Digit*, December 2006). It allows you very granular control over the machines and users on your network, including the ability to enable or disable USB drives to prevent data theft.

Security patches for Windows 2000 and XP are released more often than anyone would like, and you can hardly be expected to run around the office asking everyone to make sure they installed the latest one. With a domain controller, you can just push these updates to every machine—not only is it much easier, users won't even feel the intervention and can carry on working as usual. No more "my system is being updated" breaks! Even the enterprise versions of popular anti-virus suites integrate with domain controllers, so you can load the latest virus databases to all workstations in one go.

In Control

Right out of the box, Windows Server 2003 lets you monitor programs that users are installing on their workstations, and can even give you a daily update via e-mail. You can also install or uninstall programs from their machines, thus deftly avoiding any nastiness that may arise from unauthorised software.

Beyond this, you can choose to purchase Windows XP Business Desktop Deployment (BDD), which lets you create images of Windows XP installations based on user groups and deploy them from your server itself, so no more worrying about installing XP on a new workstation or re-installing it on an existing one, or even many workstations at a time. Add-ons like Solution Accelerator for BDD are available for free download, and help you streamline the process even more. Creating a deployment image is a long task thanks to the dizzying number of options you can set, but this one-time effort will pay off in the long run. One caveat, though: the images created in BDD only work for identical hardware configurations. BDD for Windows Vista, incidentally, won't have this limitation.

Outlook, Exchange, And The Domain

After centralised security and administration, perhaps the most compelling reason to shift to a domain architecture—specifically under Windows SBS 2003—is that using Microsoft Exchange Server for managing your e-mail will turn Outlook from a personal mail client and PIM to a very rich collaboration tool. The calendar, for example, lets you set up a meeting with any user on the domain (they all turn up in a global address book), using *their* calendars to tell you when they're free. You can also assign tasks and deadlines to anyone—they'll even receive reminder e-mails when they miss one—even appoint delegates to handle your correspondence while you're on those much-needed vacations.

Bottom Line

While Microsoft enthusiastically recommends setting up a domain for anything more than two PCs, the costs—the hardware, the OS, electricity consumed by the always-on domain controller and a recommended backup controller—would really start to justify themselves in the vicinity of 15-20 PCs. All you need to remember is to go about it slowly and meticulously—test the domain setup on a small set of PCs first, iron out any kinks, and find your sweet spot *in re* global settings before you unleash it system-wide. Growing pains will be inevitable, but you should soon be able to sit back and watch all that free time trickle back into your schedule. ■



...perhaps the most compelling reason to shift to a domain architecture is that Microsoft Exchange Server will turn Outlook from a personal mail client and PIM to a very rich collaboration tool

Lead Feature

A Few Of Our Favourite Things

Smart design and ultra eye-candy—stuff you just can't keep your hands off

Ahmed Shaikh

Beauty has always transcended function. Utility tends to take a back seat to visual oomph, and it is rare to find something that captures both form and function in a beautiful package. Which is why we all love products that do just that; like the iPod, or Shakira. It's even fashionable to hate the diminutive music player that has spawned an army of zealots, and has kick-started an industry (the iPod, not Shakira). But the iPod is not the only tech product that has good design and good looks on its side. Here we talk about a few of our favourite tech products that offer something compelling, and wear shades while doing it.

Sonos Music System

Sonos is a brilliant wireless music solution that just works out of the box. It lets you play digital music all over your house-and control it all from the palm of your hand. With a wireless controller the product offers plug-and-play access to millions of songs-from your iPod, or your favourite music service, Internet radio, your personal digital music collection, or all of the above. It also works with a Universal Plug and Play server so it really doesn't need a PC to be on.

With a Sonos ZonePlayer in the rooms of your choice, you can play the same song in different rooms, or different songs in different rooms. All you need to do is grab the full-colour controller and simply pick a room, pick a song and hit play.

Imaging **Pradip Ingale**





Sonos is ultimately a great design through integration—wireless technologies, LCD displays, intuitive control system, and great software to back it all.

Kodak EasyShare-ONE Zoom Digital Camera

The EasyShare-ONE brings you closer to your photos like never before—it's a camera with a touchscreen! Its big 3-inch touch-screen LCD flips and twists on a hinge for reviewing photos or capturing a wide range of compositions, from self-portraits to timer shots or ad hoc moments. The touchscreen really simplifies the camera's operation and setup—you can shoot, mail, and print without trudging through nests of menus with clumsy buttons. What's more, the camera is also a Wi-Fi Internet-connected photo viewer that allows users to easily share, print, and e-mail pictures. This Kodak is great product design through a touch interface.





iRiver U10 and S10

iRiver has been rocking the design boat: in a market where most MP3 players are iPod me-toos, iRiver's products dare to be different. The U10, for example is a slick screen driven MP3 player that resembles a small traditional TV unit when sitting in its cradle. It is controlled by pressing on one of the four sides of its screen. The U10 can record music, video, play MP3, display photos and e-books, while sitting pretty in its TV-cradle on your desk. It even comes with a small IR remote! iRiver also recently unveiled the S10—an MP3 player in the shape of a watch. This unit's screen has a short tail of a USB cord, which can be wrapped around the wrist much like a watch. While the player looks slick it is also Bluetooth capable and can thus relay music files wirelessly to a Bluetooth headset-an elegant and function design rolled into one!

Logitech diNovo Edge

The diNovo Edge marries a sexy razor-sharp form with a feature long overdue for wireless keyboards—rechargeable units. The diNovo is a Bluetooth wireless keyboard and is Li-Ion powered. Stylishly sleek with its elegant charging base and backlit controls, the diNovo Edge has a multifunction touchpad that unifies scrolling, selection and cursor control. Its laser-cut Plexiglas and aluminium frame hide hot keys that light up on command and then fade into the background. With a touch-sensitive volume control, the Edge makes a bold statement and is optimised to work and play with Windows Vista.



Sony Vaio TX Notebook

The Vaio TX is elegance elevated. The notebook aspires to, and attains the goal of power in a small package. With just over a kilogram in weight, this ultrathin notebook has an ultra-flat 11.1-inch widescreen display with a thickness of just 4.5 mm; made possible with an LED backlight. The TX series notebooks also feature an innovative housing made entirely of carbon fibre. Compared to conventional synthetic materials, this material is distinguished by double the

GOOD IDEA

KODAK EASYSHARE V570

Instead of one lens, the V570 packs two -- one fixed focal length and the other a more traditional zoom-capable. That gives the camera the ability, unavailable in anything in its diminutive size, to take expansive wide-angle photos.



LEXAR MERCURY

The Lexar Mercury plugs a great idea into its body—a fuel gauge which tells you, without plugging the drive, how full it is. Thanks to E-Ink technology, the bar is always visible without requiring any power.



SAMSUNG HELIX

With a press of a button, the Samsung Helix allows you to record any song that might be playing on its XM satellite radio: you need not hit that record button at the beginning of the song—it records the entire song even if the button is pressed late into the number.



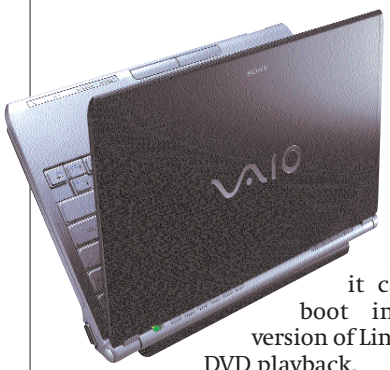
LACIE BRICK MOBILE HARD DRIVE

Much like Lego blocks, these LaCie drives can be stacked one on top of another to expand the overall storage capacity, while saving desk space and looking cool. Stack and Play, what a great idea!



SANDISK ULTRA II SD PLUS

Here's the simplest of ideas—integrate a USB connector into a flash memory card. Now there is no losing hair over forgotten USB cables, just plug the card directly.



resilience, four times the rigidity, and one third the weight. While this thin wonder packs enough punch to run Windows XP Professional, it can also quickly boot into a stripped version of Linux for audio and DVD playback.

Toshiba Red Transformer

The Toshiba Red Transformer laptop, with its 17-inch flat screen, easily transforms from the utility of a laptop computer to the fun of a flat screen home entertainment centre. A unique sliding hinge attached to the back of the screen transforms the computer into entertainment mode by pushing the screen to the forefront. The screen rests on the integrated speaker panel and a removable remote control and keyboard allow the computer to be controlled from afar. In work mode, the keyboard is removable for wireless use. In entertainment mode, a remote control slides out of the aluminium housing and the speaker enclosure flips up to connect flush with the screen, creating a surface with video and sound oriented directly toward the viewer.



Nintendo's Wii

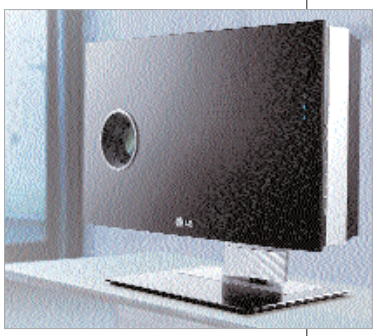
The Wii is an excellent game console that succeeds because it is not afraid to have fun. At the heart of this design masterpiece is a wireless controller, which detects the motion of your arm in three dimensions and in real-time. As you slice, swing, or swoop through the air, your animated character on the TV screen swings the corresponding baseball bat, tennis racquet, fishing rod and so on.



Not only is it a lot of fun, but it also doubles as a great workout routine. The Wii's accessible form is proof that a great design ought to follow a clear and well thought out function.

LG AN110 Digital Projector

The LG AN110 is a digital projector that gives this genre a new aesthetic appearance. The projector delivers on two fronts-it is aesthetically pleasant, so much so that it would not be out of place in the living room, and it delivers a low profile, allowing it to be integrated with furniture or hung on walls. The mirror finish of the acrylic front panel along with fretwork-patterns is designed to reduce fingerprint marks and dust collection. It may be wall-mounted, set up freely on its own stand or simply be placed on a desktop. The automatic lens door, the ventilator, the auto focus as well as the zoom are controlled via a remote, and are adjustable to fit many different viewing scenarios. At a distance of 3.2 metres, the AN110 projector provides a 100-inch HD quality screen picture.



Wacom Intuos3 Graphic Tablet

The Intuos3 successfully simulates the feel of paper in a digital garb. Intelligent key placements and ergonomics play a vital role in this tablet's design: a vertically arranged touchpad serves to scroll up and down Internet pages, or to zoom in and out under Photoshop or Painter. The tablet is suited to both right- and left-handed use due to a symmetric arrangement of keys. The cordless and battery-less pen that drives the system comes with three exchangeable tips so that only one pen can be used for a wide variety of applications. The pen holder

PANASONIC LUMIX DMC-L1 AND C1

An external flash unit offers the flexibility to bounce light off the ceiling for an even lighting of a subject, something an inbuilt flash unit does not offer. However, you might not always have an external unit handy. These cameras from Panasonic offer the best of both worlds: if you eject the built-in flash firmly, it pops up and faces forward. But if you push lightly, it pops up angled 45 degrees upward towards the ceiling. It's a great idea!



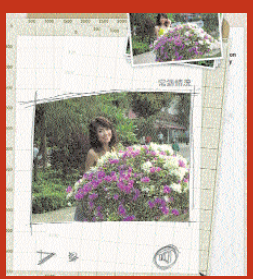
MAGSAFE POWER ADAPTER

Another design win for Apple-the MagSafe is a simple idea that solves a very real problem of accidentally dragging your laptop to the ground by tumbling over its power cord. The idea behind the design is simple-a magnet attaches the power cord to the laptop, which easily detaches and drops when yanked, without dragging the laptop along.



CANON FACE FINDER FEATURE

Several Canon cameras offer a facial-recognition feature that hunts out faces from a scene about to be shot—this is a great feature that allows the camera to better calculate for focus and exposure, while avoiding blasting their faces with a bright flash light.





enables vertical and horizontal placement. In its design, the Wacom Intuos3 is clear and concise.

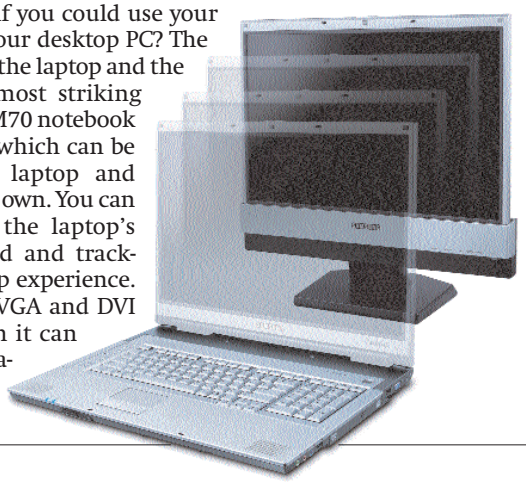
Apple iPhone

Sure, you won't see one until late this year (if you're lucky), but the recently announced iPhone from Apple is built on great ideas. The most striking feature is the phone's 3.5-inch touch-screen with multi-touch: what this means is that the screen is capable of detecting multiple touch points rather than a single point of contact. This feature allows the phone to recognise gestures such as a pinching motion with the fingers to zoom into and out of an image. The phone also comes with a proximity sensor which detects if you are holding the unit close to the ear-switching off the screen and locking the touch functions to prevent accidental presses. The iPhone comes with a motion sensor that detects the orientation of the screen and displays photos and videos in either landscape or portrait modes automatically. Apple's design has always been about underlying simplicity of use, and the iPhone, at least on paper, seems to be no different.



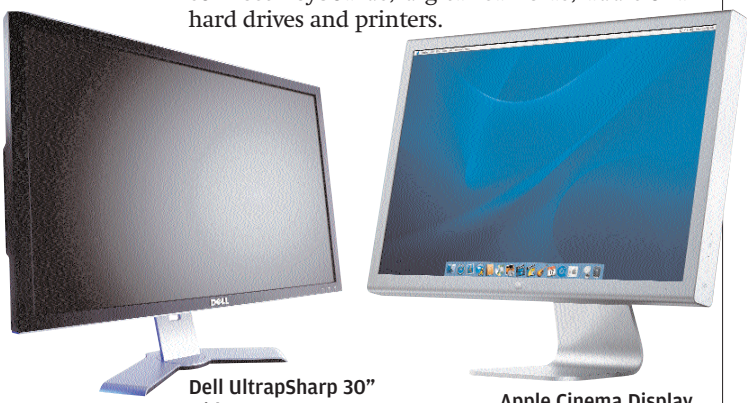
Samsung M70 Notebook

With notebooks displaying large 19-inch screens; wouldn't it be great if you could use your laptop's display for your desktop PC? The M70 seeks to fill both the laptop and the desktop shoes: the most striking characteristic of the M70 notebook is its 19-inch screen, which can be detached from the laptop and placed on a base of its own. You can thus do away with the laptop's laptop-sized keyboard and trackpad for a true desktop experience. The M70 also offers VGA and DVI ports, through which it can be connected to a separate computer. What a neat idea!



Dell UltraSharp 30-inch Widescreen Monitor + Apple Cinema Display

Sometimes, design takes a backseat to sheer form. These 30-inch displays from Dell and Apple scream appeal and demand attention. The Dell's screen is adjustable in height by up to 90 mm and can be rotated left and right by up to 60 degrees, and tilted forward and backward. The monitor is equipped with four high-speed USB 2.0 ports and an integrated 9-in-2 media card reader, so you can connect keyboards, digital cameras, additional hard drives and printers.



Dell UltrapSharp 30" wide screen

Apple Cinema Display

The Apple Cinema Display's heart lies in the functionally designed, smoothly operating hinge. With a hardly noticeable movement the monitor's position can be altered. The display design also creates a visibility angle ranging from -5 to +25 degrees. Never mind all that though, these darn things are 30-inch monitors! We want.

007 USB Flash Drive

Here's a product for the truly paranoid-the 007 USB Flash Drive is a small dust- and waterproof USB stick with multiple data security functions. Its housing is made of stainless steel, equipped



with a combination lock protecting the lid from unwanted removal, and the entire stick from loss by using an anti-theft cable made of steel. Only those users who know the right combination to the lock can connect the stick up to a computer. Additional protection is provided by a data encryption function, allowing access only after having entered the correct password. Wow. Paranoia makes for cool design!■

readersletters@jasubhai.com

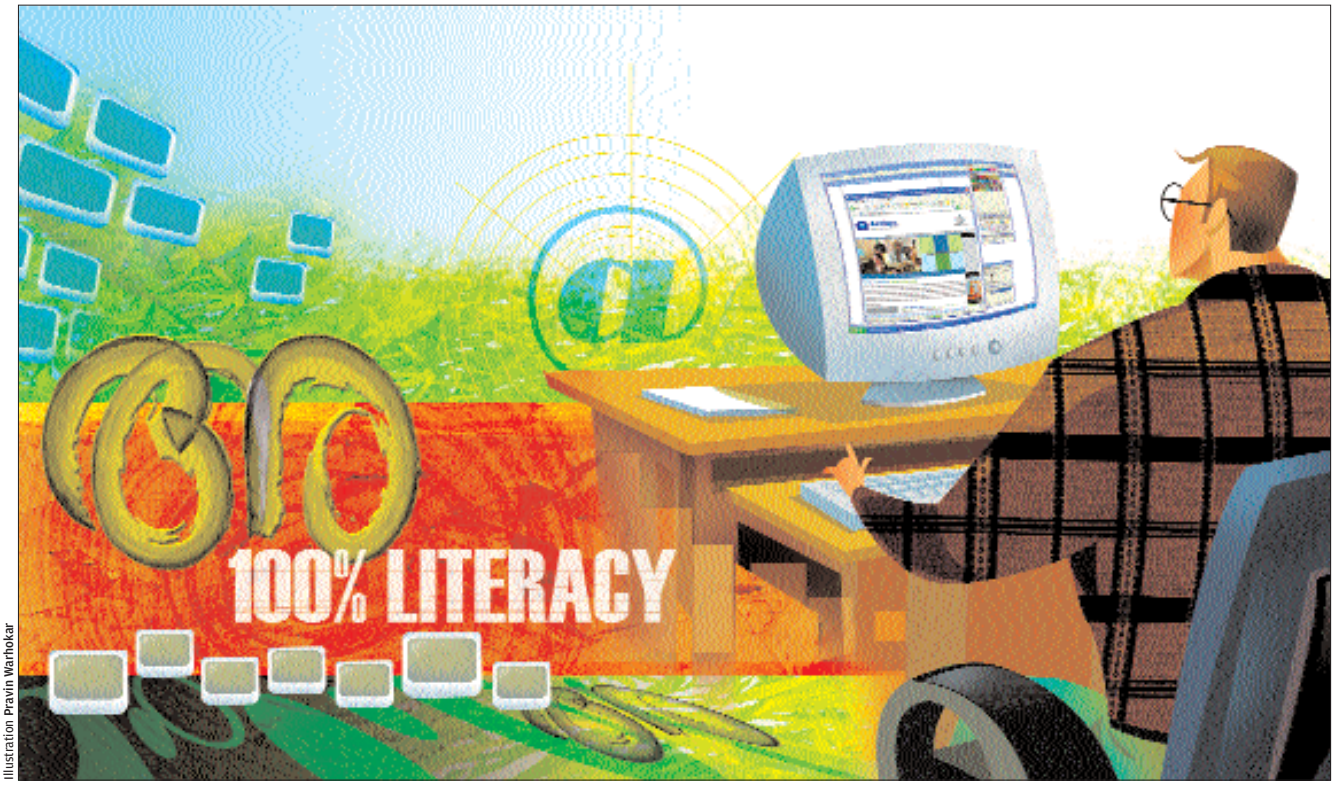


Illustration Pravin Warhokar

Completely Internet Literate

God's own country gave India its first 100 per cent e-literate district

Samir Makwana

"No need to write letters... no telephone required... now I can see their faces and talk with them. It's like having them right in this room," says eighty-three-year-old farmer Mohammed Kutty Haji, Marakkara Gram Panchayat. He got to the fourth standard as a kid, and now comfortably chats with his son and grandson who live in a Gulf country—after receiving e-literacy training.



Chatting with a grandson in the Gulf: M K Haji of Malappuram

Many people like him enjoy the facilities of video chatting, video counselling, e-mails, and more at the many Akshaya e-Kendras.

The Akshaya e-Kendras are one-stop information and e-services kiosks, established in Malappuram district under the Akshaya Project. This project is the ICT (Information and Communications Technology) for Development Project, part of the Kerala State IT Mission. It was launched to provide e-governance and other related utility services to general citizens. The project piloted at Malappuram with a different take—"to bridge the digital divide," by making residents of the district computer-literate.

The objectives of the project were to ensure rural connectivity through broadband-based Internet and intranet access, to provide basic computer literacy, and make local language e-content such as agri-business information and educational CDs available throughout the state. The project also focuses on promoting rural and youth entrepreneurship through ICT.

The Akshaya Project has won several awards for its implementation of IT, e-governance, and other facilities in the rural sector, effectively bridging the digital divide.

A Brief Profile

On 18 November, 2002, at Thiruvananthapuram, the Akshaya Project was launched by the President, Dr A P J Abdul Kalam. The project was piloted at Malappuram district north Kerala. In the first phase of this project, the target was, through an e-literacy program and providing basic computer training, to make 6.5 lakh people computer literate—one person from each household. The e-literacy training, which means providing basic computer operating exposure, would be provided at computer centres called

Akshaya e-Kendras. A total of 638 e-Kendras were established across the district in the first phase of the project, which covered about a hundred Gram Panchayats and five municipalities.

In the second phase, the focus was to provide more advanced computer courses and education programmes. For the entrepreneurs who are the owners of the Akshaya e-Kendras, services such as Desktop Publishing (DTP), data entry, e-learning, computer training, and Internet telephony would be facilitated. The location of the e-Kendras was planned such that each would cover 1,000 to 3,000 households, and there would be at least one Akshaya e-Kendra available to every citizen.

The project is the first district-wide e-literacy project in India, and boasts the largest wireless networks in rural areas.

"In 2005, a programme called 'Internet for the masses' was rolled out. Earlier, a majority of the e-literacy training was imparted offline, based on CD. After the implementation of wireless networks across the districts, various online training programmes and services would be possible," says K Anvar Sadath, manager (e-governance) and head (Akshaya), Malappuram Cell.

The state tested a variety of technology options, and chose WIPLL (Wireless Internet Protocol in Local Loop). This enabled a link to each Akshaya e-Kendra with a bandwidth of 4 to 8 Mbps. The wireless connectivity in Malappuram district was implemented by Tulip IT services, with the hardware support from US-based Airspan Networks. It was tough—the district is spread over 3,550 square kilometres, with dense vegetation and hills.

Why Malappuram?

Malappuram is the most populous district (over 36 lakh) in Kerala, with the highest population growth rate (11.4 per cent). The population density is 1,022 per square kilometre, compared to 819 in the state.

From 1.5 million people across the state, more than 3 lakh just from Malappuram district work in countries in the Gulf. But due to the lack of good educational backgrounds and exposure to IT, many of those who stay in the district have to work as labourers and in low-paying jobs. In addition, the cost of communication is very high. "The Panchayats of Malappuram district came up with a proposal to educate at least one member of each family to help them to get better jobs in Gulf countries, and also to bring down the cost of telecommunication," says Sadath.

The idea was to leverage the benefits of the available IT infrastructure through ICT. Awareness amongst the locals was created through advertisements, posters, and other methods of promotion. But word of mouth and one-to-one reference, for the most part, triggered the drive towards gaining computer literacy amongst the residents.



"After the implementation of wireless networks across the districts, various online training programmes and services would be possible"

Anvar Sadath
Manager (e-governance) and head (Akshaya) Malappuram Cell

The Akshaya e-Kendras

These are looked upon by the local people as institutions similar to schools, hospitals, or government offices. They are each equipped with five to 10 computers, a server with Internet connectivity, and printers and other peripherals. They are multi-service junctions for the residents and a source of income for the owner.

At the e-Kendras, various services are available—the e-literacy and advanced training programmes, Internet-related services, communication facilities, information about various government schemes, and e-transactions. The Akshaya centres also act as e-governance cells—they are connected with government offices via the intranet.

Online services include e-payment for electricity and telephone bills, e-Krishi for farmers for enhancing agri-based services, content development, computer-aided learning for students, e-governance, and other activities such as women's clubs for their welfare, kids' club for gaming and other entertainment activities, and so on. Students also use the Kendras for online tuitions after school hours.

Najeeb P, an entrepreneur of Akshaya Project in Moorkkanadu Panchayat, says, "I took a loan of Rs 1.5 lakh from local bank a year ago, out of which only Rs 50,000 remains to be paid. I've received good recognition amongst three wards of the Panchayat by having made 1,016 people e-literate. Even though the BSNL counter, post



Women's e-mpowerment: at the Akshaya E-Kendra in Muthiraparamba...



...everyone's invited to the e-village



Age no bar for e-literacy!

office, KSEB office, etc. are close by, most of the villagers visit my e-Kendra for e-payment!''

There are certain criteria to be met for starting an e-Kendra. An entrepreneur should himself be a minimally qualified IT person, meaning he should have had basic exposure to computers and IT. Every e-Kendra would have sole proprietorship with a minimum of three qualified trainers.

An Akshaya e-Kendra requires an investment of about Rs 3 lakh, and should have a minimum area of 400 square feet. Purchase of hardware and software should be according to Government guidelines. The three-tier Panchayat (Gram, Block and District) pays the entrepreneurs Rs 100 per person made computer literate at their e-Kendras.

Before opening an e-Kendra, an entrepreneur must go through a screening process for assessing their capacity to run and manage one. In addition, those wanting to be trainers have to attend special training workshops. The district's Akshaya Project Cell also has well-qualified staff for monitoring and evaluation of the activities at the Kendras.

Siddique, a businessman from Perinthalmanna, initiated several businesses right in his Akshaya e-Kendra—a hotel, an STD/ISD centre, a bookshop, computer and mobile phone sales and services, and more. He says, ''The Akshaya e-Kendra is a service agency to the people in my village; I am least bothered about the profit from my businesses and e-Kendra! Four to six people visit my e-Kendra daily to register their passport online under the recently-started online passport registration programme.''

The E-Literacy Course

An e-literacy course is 15 hours long, with a 90-minute session per day, for which one pays Rs 40. Of the household, women and aged male citizens are given priority. Qualified trainers (with a minimum of a Post Graduate Diploma in Computer Applications) provide training along with interactive CD-based content designed in the local language by the Centre for Development of Imaging Technology (C-DIT), Kerala.

The content of the CD is user-friendly, with commentary in Malayalam and interactive content and games. After the 15-hour instruction period is completed, one must take an online test.

After attaining e-literacy, the individual would be able to use word processing, gaming, and entertainment programs, and use the Internet for e-mail, browsing, chatting, and so on. Those who have achieved basic e-literacy could enrol in advanced programmes such as e-Vidya—Microsoft Office Package, Internet for all, Arabic typing tutor, Microsoft Unlimited Potential Programme, and more. Upon completion of these programmes, the individual is awarded a Government-recognised certificate from Kerala State IT Mission and the Computer Society of India.

Available for school-going students are computer-aided learning programmes such as Vijayabheri, Intel Learn Programme, Computer Assisted Learning by the Azim Premji Foundation, and various others, along with e-tuition facilities. Also, some trainers at the e-Kendras help them with their school projects.



100 per cent e-literate means *everyone*!

Malappuram On Top

Since Malappuram is the pilot district, the people enjoy many benefits over those of other districts. Kunchi Bava, who is physically challenged, is well known amongst the residents of Chapapalli village, for his multi-service Akshaya e-Kendra. He says with pride, "Thus far, around 500 families in this village have achieved computer literacy through this e-Kendra." As of now, 400 Akshaya e-Kendras are functioning successfully.

Of 6.5 lakh people, 5.9 lakh individuals have achieved e-literacy through the project, of which 25,738 are certified. Of the e-literates in Malappuram, more than 65 per cent are women. The majority of the trainers at the e-Kendras are women, and there are certain e-Kendras run solely by female entrepreneurs. UNESCO has recently shown interest in supporting the Akshaya project in the field of women empowerment.

Many women, after gaining computer literacy via the project, go on to run e-Kendras. Online education services help students not only via e-tuitions, but also by way of counselling for their career options.

The project has also generated direct employment for 7,400 people— including the staff at the e-Kendras, content developers, and the project staff.

Future Plans

A future Akshaya e-Kendra would be a multi-purpose centre providing information, communication, and business opportunities, using the available IT infrastructure. The Kerala State IT Mission plans to roll out several new programmes at the Akshaya e-Kendras. After citizens, 38,000 government employees will receive computer training at the centres.

The next step would be sector-wise intervention, such as the starting of clubs such as the Akshaya student club in various schools, and Bhoomi, a farmers' club, in all Panchayats.

Malappuram is looked up to as an example, and the project will be rolled out in six more districts of the 14 districts in Kerala. Small steps, but inspirational. Is achieving 100 per cent literacy in the country impossible? We don't think so. ■

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FORGET BAD BOYS: THE MEN ARE HERE

You're Marcus Fenix. A former COG (Coalition of Organised Governments), now declared traitor, serving sentence. The game starts with you being rudely busted out of the can by some of your former teammates. Battling your way out of the jail pens, killing locusts (what else?). Your aim at this point is to rendezvous with one Alpha squad who are in possession of an unknown artefact of immense power.

Its 14 days after Emergence Day—the day the locust horde first emerged from the bowels of the Earth; their mission the obliteration of humanity; reason unknown... Incidentally, these locusts are humanoid, with the same weapons you have, and they can use 'em too! The locust army has a number of variants—you'll go up against Drones, Hunters, Berserkers, Boomers to name a few...

What will strike you first is that the action is fast, furiously so. Tactics are of paramount importance—you cannot achieve anything with blazing guns alone. Cover and how you manoeuvre around it is perhaps the most important skill you will need to learn, headshots notwithstanding... You are as vulnerable as your enemies, and peeking around corners will cause others to take potshots at you, while your intended target lays low. Cover, cover, cover...I've said it before...I'm saying it again!

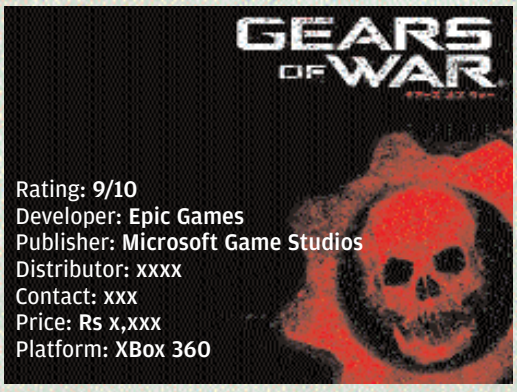
You move as an individual, covering your squad mates as they cover you: every hunk of concrete is tactically significant, as is every corner. Death lurks in abundance in every splendidly-done level of *GOW*, and your wits are the only thing you've got going for you.

Graphically brilliant, the combat ultra-realistic and 100 per cent brutal... you will frequently see oodles of gore on-screen. By gore we don't mean just bullet holes in corpses and splattering skulls via headshots, but actual chainsaw action courtesy the ripper—an assault rifle with a (you guessed it) chainsaw melee attachment. Then you can actually melee an enemy with a grenade (these grenades have spikes that penetrate armour and hide...ouch! Clinging to the baddie while he jumps around, the grenade will explode after five seconds...splat! The storyline, while not the deepest I've seen, is good enough not to cause an "Aw, I knew that would happen."

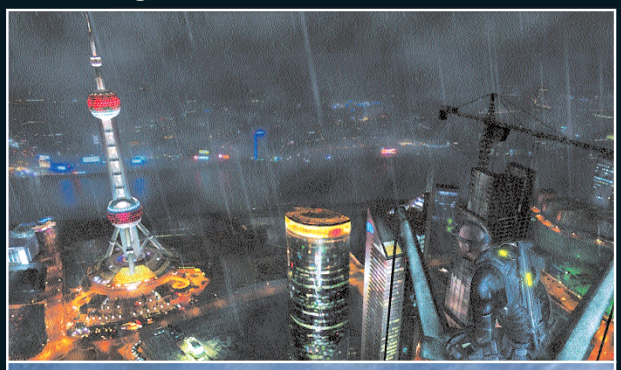
One of the biggest pluses for *GOW* is its control system. Initially difficult to control, *GOW* is perhaps the best third-person implementation on the X360 to date. Camera angles don't disappoint either. Just as well. *GOW* punishes all but the most observant of COGs.

Did I mention *GOW's* multiplayer rocks? This game has been touted as a console seller, promising to do for the X360 what *Halo* did for the X-Box!

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Rating: **9/10**
Developer: **Epic Games**
Publisher: **Microsoft Game Studios**
Distributor: **xxxx**
Contact: **xxx**
Price: **Rs x,xxx**
Platform: **XBox 360**











Brilliant. Twice

The maestro of stealth is back as Sam Fisher returns for a fourth innings. This time it's Fisher getting (surprisingly) locked away for hitting the ceiling owing to some terrible news and subsequently hitting something else (no spoilers). The jail thing turns out to be a setup, as Fisher's incarceration was planned by the NSA. Turns out all this is done to get him into the good books of the JBA (John Brown's Army), a heavily-armed terrorist group.

Escaping along side a JBA agent plus Sam's own considerable skills means the JBA accept Fisher into their ranks, his loyalty unquestioned. But he's still an NSA operative. So throughout *Double Agent* you'll be given missions from both parties. Complete missions from the JBA and they trust you more. Lose trust of any one party completely and your game's over. Some objectives later on will conflict, so you need to juggle around priorities a bit. A couple of significant gameplay changes—no health kits, Sam recovers health automatically when not in combat. Secondly



there's no stealth meter, you'll have to watch the lights and shadows around you.

The missions are (thankfully) varied, as are the locales Fisher visits. However, on the whole, there's nothing in the way of path-breaking differences between *Double Agent* and earlier versions, except for the trust factor, which does add depth to the gameplay, if not replayability.

Graphics still look much the business some four years after the first game; brilliant use of HDR and shadows and gorgeous textures will make upgrading to a new graphics card worth every rupee! The aural engine is right up there, with voice acting to match. Enemy AI is sharp, but I hardly noticed any changes over *Chaos Theory*. Multiplayer has been spruced up.

Overall, *Double Agent* delivers the goods doing everything that the previous three games in the series did, with a little extra. One downside is the system requirements, which aren't as forgiving as the earlier versions. If you have a beefy rig, however, nothing should stop you from picking this one up.

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Over

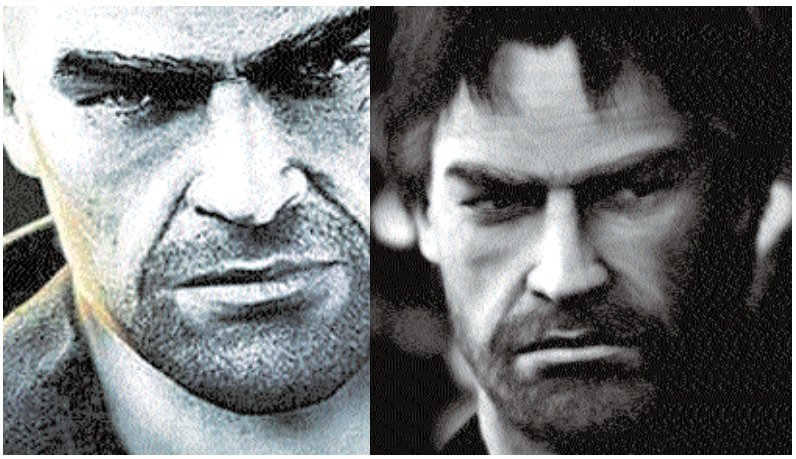


In a rare occurrence, the PC and PS2 versions of *Splinter Cell: Double Agent* are actually two completely different games. The story remains the same, but is told differently, complete with different missions. The PC and Xbox 360 versions are "next-gen" and the PS2 and Xbox are the (seemingly shunned) "current-gen" versions. We've noticed that the current-gen version isn't getting Ubisoft's love the way the next-gen is, which is a shame.

The PC version is definitely more stylised, and the PS2 version takes the academic tell-it-like-it-is approach. While the former makes for more entertainment, I prefer the latter, which doesn't leave any unanswered questions in the overall picture.

The first mission is easily the best training mission for any game we've played here. Not only does it tell you exactly what to do, it also walks you through the procedure, prompting you to hit the appropriate controls when the time comes. You're thus taken through every single move Fisher can pull off—a feature sadly lacking on the PC.

The PS2 version also retains the HUD, which tells you how exposed Sam is or how much noise he's making—thankfully. It takes a lot of the guesswork out of the game, and is one less headache to manage. You'll also be using gadgets more often, including the trusty EMP gun to disable cameras and lights.



TOM CLANCY'S SPLINTER CELL DOUBLE AGENT

On its own, the PS2 version is an excellent game. It may not look as good, but the gameplay is pretty solid. The trust meter is obviously there—tip the balance too much to one side and you'll have an intense, time-limited mission to complete to show that you're still loyal to the other. The difficulty is a tad forgiving—while staying stealthy is challenging, once you're exposed, the enemy does take its time to get an accurate shot at you. Unlike the PC version, your health doesn't regenerate over time—you'll need the same old medkits—and this adds another bit of tension to the experience. Level design is fantastic as usual, and you're presented with ample opportunity to pull off some crazy, acrobatic kills—upside down neck-breaks, split-jumps and a whole lot more.

One nag with the PS2 version is that the console's age is clearly showing—save and load times are painful, especially considering that you'll need to save your game compulsively. You'll also be overwriting each save, so there's no going back to a better time. Also say bye-bye to the prospect of replaying the game from a favourite point once you're done.

The soundtrack is brilliant, and music fades in the second you're spotted, adding to the already tense atmosphere of the game. Overall, this makes for a good buy if you've hung on to your PS2 and have found nothing wrong with the old *Chaos Theory*-style gameplay.

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PS2 Rating: **8/10**
PC Rating: **8/10**
Publisher: **Ubisoft**
Developer: **Ubisoft Shanghai**
Distributor: **E-Xpress Interactive**
Contact: **sales@e-xpressindia.com**
Price: **Rs 1,299 (PC), Rs 2,999 (PS2)**
Requirements (PC): **Pentium 3 2.4 GHz, 512 MB RAM, Direct X9.0c ready 128 MB graphics card (at least SM 2.0 support)**



Tom Clancy's RAINBOW SIX VEGAS

After last year's insultingly easy *Lockdown*, the *Rainbow Six* franchise had pretty much fallen in our eyes; *Vegas*, however, redeems it, and then some. While the approach has definitely shifted in favour of action rather than tactics, it retains most of its don't-go-in-with-guns-blazing heart. You play Logan Keller, the new Rainbow Six squad leader, and you must take your team through gruelling missions in the slums of Mexico and beneath the lights of Las Vegas. The game follows a (very weak) storyline, rather than just a bunch of unrelated missions—stop the terrorists before they can unleash their Doomsday Device™ upon the world. Yawn.

Undoubtedly the best feature of this game is the new "cover" system. Hold down the right mouse button, and Keller hugs the wall, and you switch to a third person view, from whence you can survey the situation by peeking round corners, or just sticking your gun out and randomly firing to suppress the enemy. All this is very reminiscent of *Gears of War*, and works just as brilliantly. Switching between third- and first-person views is seamless, but does get disorienting if you do it too much.

Vegas is also a good bit tougher than *Lockdown*, though you won't notice this initially. Your health now regenerates while not in combat, albeit *very* slowly, so don't expect it to be your ticket to clearing a mission with ease. Normal difficulty is challenging, but it's Realistic that you want to play—three or four bullets (or a single head-shot) are enough to take you down. However, if you use cover properly, there's no reason for you to get killed even in Realistic mode. You now have some cool moves up your sleeve, including the ability to rappel down buildings, either to survey the situation or score some kills. You can also heal team members when they're down, but the blighters don't return the favour. The enemy AI keeps things interesting, but they're not exceptionally difficult to take down when you keep track of their tactics.

When you get done with the Story Mode, try out the Terrorist Hunt—these are exactly what they sound like—skirmishes with bands of terrorists—and you can choose any of the game's environments to play out. Plenty of action and insanely fun, these add a lot to the game's replay value, and are good practise for multiplayer mode, should you have the bandwidth.

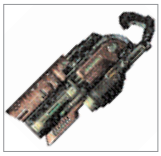
The game looks gorgeous, environments are well-engineered, enemy AI can be nasty at times, teammates aren't idiots, and gameplay is elegant—there's little reason, if any, for you to not buy this game.

nimish_chandiramani@ thinkdigit.com

Rating: **9/10**
Developer: **Ubisoft Montreal**
Publisher: **Ubisoft**
Distributor: **E-Xpress Interactive**
Contact: **sales@e-xpressindia.com**
Price: **Rs 1,299**
Minimum System Requirements:
P4 3GHz or AMD Equivalent, 1 GB RAM, 128MB, Shader Model 3 and DirectX 9.0c compatible video card



Quake Goes Real Life
Probably *Quake* enthusiasts themselves, the US Navy has developed the first working railgun, capable of damage equivalent to a Tomahawk cruise missile—without even using an explosive projectile! Write in and tell us which *Quake* weapon you thing is next!



Microsoft Uses Comics To Fight Piracy
In a bid to reach a broader audience with their anti-piracy campaign, M-Dollar will now use comics to get their message across. The newspaper-style affairs will tell Little Johnny that piracy is bad, and hopes it will work better than the "give us money" argument.



Escape

WII CAUSES FIRST DEATH

Fata1ity!

First, there were the weak straps that snapped and turned gamers' Wiimotes into life- and gadget-threatening projectiles. Then there were the "Wii elbows" and other miscellaneous activity-related injuries, caused due to gamers' actually getting off their behinds to play games on the diminutive console. Now, the Wii turns deadly, claiming its first innocent victim—28-year old mother of three Jennifer Strange—and all she wanted was a Wii for her kids.

It all started when KDND 107.9 FM—a Sacramento, California radio station—decided to hold a "Hold your wee for a Wii" competition. Contestants had to drink a half-pint bottle of water every 15 minutes for the first hour, followed by larger ones. The winner was the last one to answer Nature's call (or scream), and was to go home with considerably less wee and lots more Wii. At the end of the ordeal, Strange was apparently complaining of a severe headache and was almost in tears. Her body was subsequently found at her home, and the coroner's office pegged water intoxication as the cause. Your kidneys can only process 1 to 1.5 litres of water per hour, and consuming large volumes of the stuff lowers the sodium concentration in the blood, upsetting the balance between the fluids inside and outside blood cells. Water gets into blood cells through osmosis, causing them to swell and eventually rupture.

For once, though, Nintendo is well out of the controversy, and the blame goes squarely on the shoulders of the radio station. A prize as coveted as the Wii was bound to cause disruptions in human sanity, as seen in the nitwits who actually put their health at risk for one. What, we ask again, is this world coming to?

LAND AHOY!

ThePirate Nation?

Swedish...ahem... "intellectual property reform group" The Pirate Bay has decided that it has faced too much oppression from the world, and plans to move to another country—preferably their own—where copyright laws are non-existent and the pirate community can carry on without a care in the world. The Principality of Sealand—a WWII naval platform off southern England—is up for sale, and Sweden's scurvy scallywags hope to snap it up, assuming their faithful

Whatever Happened To...

Khoj.com

The Great Indian Search Engine, it's been touted as. At a time when the best we had was Altavista, Khoj.com appealed to us in that it was one of those few Indian Web sites you could go to and actually put it to some good use. It indexed all Great Indian Web Sites—in a still-Americanised Web, this was essential if you wanted to find anything related to India (there was no "Pages from India" search available back then). Today, though, Khoj is but a fond memory.

What happened? The same thing that happened to so many other search engines when Google conquered All—Indian sites or not, why would you even *bother* going anywhere else for your search results? Every search engine has had to rejig itself to match up, but the Big Three—Google, Yahoo and Live—are all that people care about these days. So we headed over to Khoj (which we hadn't visited since about 1999), to see what the Great Old Indian is up to.

It's been taken over by Sify (we don't know when that happened, not having visited in so long), but seemingly in shape. The design goes awry in Opera, but we're used to sites that don't follow Web standards. Type in a search for a Great Indian Web Site (Thinkdigit) and *voila!* A blank result. Turns out that the Khoj search—the default choice, by the way—is dead. The WWW search is fine, though hardly something you're going to prefer over Google. What happened is a big online mystery—Did Khoj's spiders get squished? Or were they retired? Does anyone even care?

Win!

My Desktop

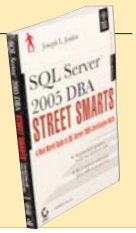
No winners this month!
There were repeats of old ideas, but none that stood out the way the past few did. Try again!



Send in your Desktop with a description of how you made it to **mydesktop@thinkdigit.com** with the subject **"My Desktop",** and tell us your postal address, too.

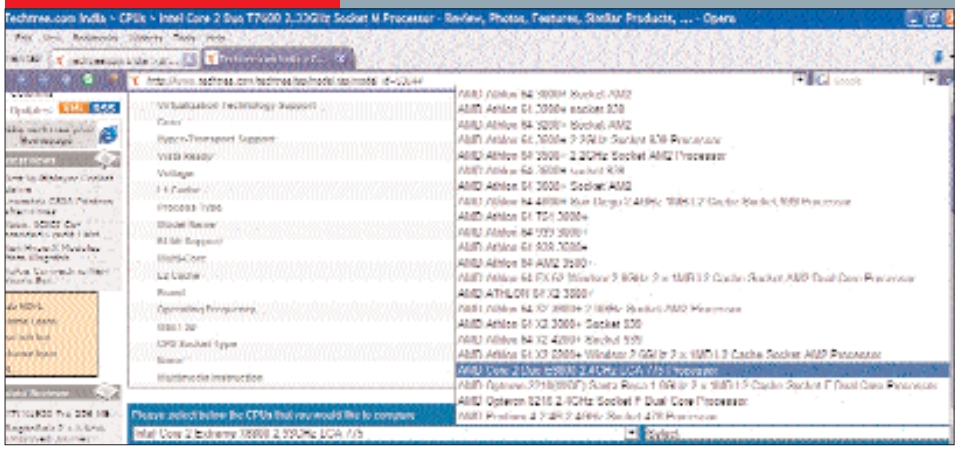
Participate in this contest and win next month

Street Smart
by Joseph L Jorden
Published by
WILEY-INDIA



DigiPick of the month

"Where AMD meets Intel"



WIN!

Send in your entry and you could win an exciting gift just by sharing an amusing picture with a tech angle to it. The picture should have been shot by you, and should not have been published anywhere earlier. E-mail your picture with the subject **"DigiPick"** and your postal address **on or before the 20th of this month** to **digipick@thinkdigit.com.** One prize-winning picture will be published each month.

Last month's winner is

Ketan Gandhi, Alibag, Maharashtra

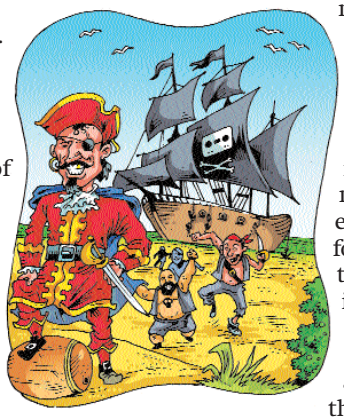
Participate and win next month **Excel Advanced Report development** by Timothy Zapqwa

Published by WILEY-INDIA



following donates them enough money to do so.

Since 1967, Sealand has been run by Paddy Roy Bates—also known as Roy of Sealand—who has fiercely protected the sovereignty of his little nation, which has become an object of desire for computer geeks everywhere. It's the ideal place to carry out any activity without interference from any government, including hosting a warez server. The fact that it's a salty-aired platform in the middle of the sea with uncertain means of obtaining electricity is hardly a deterrent, even. On, January 15, The Pirate Bay announced that they had entered negotiations with the "government" of Sealand for the property.



However, the organisation's lofty ambitions have been met with much ridicule, not to mention the fact that they've barely raised a fraction of the £504,000 that old Roy wants for the premises. Another snag is that the Sealanders don't want their homeland sold to anyone whose interests are against the UK, and this might bung a considerably large spanner in the machinery. Furthermore, the very sovereignty of the nation is under question.

The Pirate Bay has a sneaky backup plan, though—if they don't manage to get enough money for Sealand, they'll still invest in an island somewhere and claim it their country.

Prices for islands start at $50,000 these days, they tell us.

Sweden has always been a country with a healthy and socially acceptable file-sharing culture, and even if The Pirate Bay remains on their soil, all they might have to worry about is annoying legal threats from assorted record and software companies—nothing new, really. In the meanwhile, several *Digit* members are contemplating shifting to the nation, not just for the files, but also for the *average* 1 Gbps bandwidth per person. Arrrr.

I PHISH, YOU PHISH

DIY Phishing Kit Hits The Market

Want access to private information and credit card numbers, but can't code to save your life? Or are you just lazy? Whatever the answer, thanks to the Universal Man-in-the-middle Phishing Kit, you'll never have to worry again! You can buy the kit online (no, we're not going to tell you where—do your own dirty work), and "create a fraudulent URL via a simple and user-friendly

People Who Changed Computing

Clive "Speccy" Sinclair

Sinclair was a British entrepreneur who invented the world's first "slim-line" calculator, the Anita 800. In 1972, this was the only calculator that could be carried in a pocket. His biggest gift to the world was the ZX Spectrum microcomputer; in 1982, it was the UK's first massively popular home computer.



Sinclair

The "Speccy" was powerful and affordable. It was about the size of a doormat, and the black, sleek thing with rubber keys housed a Zilog Z80 processor running at 3.5 MHz, and 16 KB or 48 KB of RAM. The Spectrum used a regular TV for the display.

Due to the Spectrum's poor software, enthusiasts began to write their own, and that set the UK gaming industry into motion. Sinclair had hoped the mass-production of home computers would teach people about computers, but the Speccy became primarily a gaming thing.

Sinclair wrote his first article titled "Practical Wireless" at school. He gave up studying after school and went on to sell miniature electronic kits to the hobbyist market. Some of his books—"Radio Constructor," "Modern Transistor Circuits for Beginners," and others became a hit in the 1960s. His most recent invention is a bicycle called "A-Bike"; it weighs just 5.5 kilograms and folds up!

The Spectrum never became a big hit in the US, but people over much of the world, including India, remember it with fondness.

Bluff YOUR WAY THROUGH

GPU Terminology

Not all of us can afford multi-GPU solutions. If you find yourself being left out of conversations involving GPUs or want to fool your friends into believeing that you're a GPU-geek, here's something that might help:

HDR: High Dynamic Range in 3D gaming is the collective name given to a set of techniques used to create a greater variation between intensity levels of light. HDRs will play a greater role in upcoming DirectX 10 games, though shades of its capabilities are visible in current games like *Oblivion*, *GRAW* and *HL2:Ep1*.

GTX/XTX: Means nothing! NVIDIA has been using this handle since the past year to refer to their top of the line graphics cards—for example, the 7900GTX and 8800GTX. ATi does the same thing with 'XTX', the XTs big brother—literally. As of now only two cards bear this 'top-end' label—The X1900XTX and the X1950XTX.

Unified Shaders: Think of these as the Turbocharged V8s of the graphics world. The latest generation cards sport shader units that can perform pixel and vertex operations as required, as opposed to separate pixel and vertex shaders on previous generation cards. Strength in numbers comes to mind when you're thinking Shaders.

GDDR4: Graphics Double Data Rate Four memory takes over from GDDR3, with a serious increase in clock speeds. GDDR4 memory has crossed the two-gigahertz barrier.

Crossfire: We aren't talking about getting caught in one! CF refers to ATI's equivalent of NVIDIA's SLI (pronounced sly), which basically means harnessing the processing power of two graphics cards to nearly double performance.

Usage: My X1950*XTX*s in *Crossfire*, with *GDDR4* show great *HDR*, but now I want the 8800*GTX* for *Unified Shaders*.

Wild Wild Web

The Spirit Of Web 2.0

If you're in the market for a Web host and need some refreshing honesty, nouptime.com is the place to go. The site has a graph on the main page, titled Average Monthly Downtime. It is ascending.

In keeping with their policy and central philosophy: "We are constantly working to improve our server downtime." And just why should you use their services? 200 KB of storage, FTP via floppies mailed to them, and the best we found was Ajax E-mail: "In the true spirit of Web 2.0, everyone is invited to read and edit your emails."

Taking the cake is one of their customer "testimonials": "Exceptional service for an exceptional price. My only complaint is that technical support told me to f*** off when I called them, but everything else has been great." Not so funny, actually, considering it happens.

How Do These Things Happen?

Well, how do they? At commerce.computa-center.com, you might just stumble upon the stock-phrased "too good to be true" offer: Italy bundled with a computer. Here's one configuration we found:

- Micro Tower - P4 640 3.2 GHz
- RAM 512 MB - HD 1 x 40 GB
- CD-RW / DVD-ROM combo
- Win XP Pro - Monitor: none
- Italy

That's exactly what it reads. Neatly bulleted. Even though the boo-boo has been spotted and reported, Computacenter refuses to back down on its offer. Go figure. Warranty not clear, though.

online interface."

Surely you're going, "What the...?"—They're dumbing down *phishing*, too? While phishers everywhere spend precious time engineering the most devious schemes, this tool comes and pollutes the good, pure principle of the thing by giving even the average Joe the power to wreak his own financial havoc. When there's no respect (even if reluctant) for the efforts of true-blue phishers, we wonder—what is the world coming to?

According to the analysts at RSA Security, there are two primary advantages to this kit. Quoting from their site:

"1. It is a "universal" phishing kit, meaning it can easily be configured per target. Fraudsters who want to initiate a phishing attack do not have to purchase or prepare a custom phishing kit for each target. Once they acquire and operate this kit, the attack can be configured to "import" pages from any target website.

"2. Unlike standard phishing attacks, which only collect specific requested data (typically login and card-related credentials), this attack is designed to intercept any type of credentials submitted to the site after the victim has logged into his account as well."

All this means that not only will script kiddies be able to carry out their own phishing attacks, they might even be able to do it better! Be afraid. Be very afraid. Michael Sutton, security evangelist at SPI Dynamics has some great advice, though: "In order to defend against man-in-the-middle attacks, users should avoid clicking on links in e-mail messages," he warns. Heartening.

UNLEASH THE HOUNDS

Attack Of The Crazy Fruit

Ah, Apple. No company can ever compete with its brilliant product design, quality of service, or skills at harassing anyone with even a thought of crossing their path. The iPhone released at MacWorld this month (count the number of times we've mentioned the iPhone and e-mail it in for a special reply!), and expectedly stunned the hoi polloi with its keypad-less design. Everyone wants one now, and while they wait for their savings to accumulate, Windows Mobile users could download a skin for their phones so they would look like iPhones.

No points for guessing that Apple threw a hissy-fit—these were copyrighted icons and designs that were being used without permission, and hence an infringement on their rights. A tad extreme, even for Apple, but we can see their position—we'd have concerns if any of you lot decided to run around with notebooks carrying the *Digit* logo, too. But here's the best part—not only did the Big Fruit run around demanding the skin be taken down, they even served legal notices to bloggers who reported its existence! The content of the message goes thus:

"It has come to our attention that you have posted a screenshot of Apple's iPhone and links that facilitate the installation of that screenshot on a PocketPC device.

"While we appreciate your interest in the iPhone, the icons and screenshot displayed on your website are copyrighted by Apple.

"Apple therefore demands that you remove this screenshot from your website and refrain from facilitating the further dissemination of Apple's copyrighted material by removing the link to **http://forum.xda-developers.com**, where said icons and screenshot are being distributed."

Escape

It seems that new heights have been scaled in ridiculousness. Says Michael Arrington of popular blog TechCrunch, "I think this is all complete nonsense. If Apple wants to go after the guy that made the Windows Mobile skin that looks like the iPhone, fine. But to bully bloggers who are simply reporting on this is another matter."

And you thought you needed to *buy* an Apple product to experience their award-winning entertainment skills.

You Have Lost The Lead...

DIGIT DIARY

This month was memorable for the amount of *Quake III Arena* that all of us at *Digit* played. Even the Test Centre (TC) guys, normally known to be snobs about their dual-GPU rigs, decided to partake in a little retro-gaming. Now anyone who's played *Quake III Arena* on a LAN with more than three players will testify to its addictiveness, and we were no exception.

The entire team waited for 6:30 PM, when all the big bosses went home and the fragging could begin. This madness was multiplied by the fact that Deepak, our Ed, was out of town for 10 days...

The *Digit* writers team began on a low key, this being the first time that we had rigs good enough to play an FPS game on, and were beaten mercilessly by the MarComm and TC teams. We're better now, and at least offer *some* challenge!

DM17 has always been our map of choice, and Sanket the uncrowned king. It's always been almost pointless playing with him. However, his reign was brought to a screeching halt by Mayur, the newest addition to the TC. Apparently, sweet and quiet Mayur is everyone's worst nightmare in *QIII Arena*. All of us now know how much looks can decieve.

Deepak returned, heads rolled, *Quake*-ing ended, work began, and we all had to spend late nights here making up for lost time. The beauty of it all is that none of us regret it, and are now all happily cherishing our withdrawal symptoms, waiting for his next trip abroad!

EXTORTION

$60 For A Crap-free PC

If you've ever bought your PC from an OEM, you've probably been subjected to all those "productivity tools" that they come loaded with—a disk optimiser here, a bandwidth meter there—all well intentioned nonsense to keep your computing experience happy. So common is the phenomenon that there's even a special term for these tools—craplets.

So *why* are these on your PC, again? Turns out, the reason you're getting your PC for a reasonable price is that the OEMs make money off this crapware (that's the collective noun for all craplets, by the way). It's like advertising—if they can get their money from somewhere else, they might not let you believe you're being fleeced. However, Microsoft has been complaining about this sorry state of affairs—after the Netscape vs. IE issue, they aren't allowed to dictate terms to OEMs, which leaves them sitting on their hands in the matter of crapware.

One of the topics raised with Michael Dell at CES was the issue of crapware, and how one was to avoid it. He asked all participants to name their price—how much were they willing to pay for crap-free PCs? It was like an auction, and bidding ended at $60 (Rs 2,800). That's Rs 2800 for crap we didn't want in the first place?

Note that no mention was made of actually being able to buy a crap-less PC. So if you're still going the OEM route, you should try the PC-De-crapifier (**http://www.yorkspace.com/pc-de-crapifier/**). ■

Blog WATCH

This month, popular topics for bloggers were FireFox 3, things to do in the new year and, of course, the iPhone. Here are prominent bloggers' takes on the three topics

Richard MacManus
http://snipurl.com/feb001
(http://www.readwriteweb.com/archives/firefox_3_plans.php)

Firefox 3 Plans and IE8 Speculation—Browsers Heading Apart Again
...While Firefox is still aiming for a broad mainstream audience, Mozilla recognizes that its strengths for normal users are its extensions and customization. It notes on the wiki that "Microsoft will continue to establish deeper ties from IE7/Vista to live.com & MSN" and even that other "web service providers" may introduce their own browsers (Yahoo? Amazon?). So Firefox is aiming to be the best general Web browser—e.g. it wants to be faster for AJAX apps.

Lorelle VanFossen
http://snipurl.com/feb002
(http://lorelle.wordpress.com/2007/01/11/things-i-want-gone-from-the-web-in-2007/)

Things I Want Gone from the Web in 2007
...Out-of-control Advertising
Web pages, specifically blogs, are now looking more like classified ad sections in the newspaper than published works. They are ugly, cluttered, and some bloggers are giving up on some advertising techniques because of the "cheap look" and interference with content quality. Not every blogger needs to pay their rent with their blogs. Blog for the fun of it and let those who are serious about blogging as income make more money with lovely, interesting, and intelligently placed ads.

Jason D. O'Grady
http://snipurl.com/feb004
(http://blogs.zdnet.com/Apple/?p=375)

What may sink the iPhone
...There are a lot of issues with iPhone as others have deftly pointed out, not the least of which are the facts that it doesn't have a removable battery, it's locked to a carrier, it's wicked expensive (when you consider that Apple's getting a ~US$100 kickback from Cingular on each unit sold) and the list goes on. But what may sink the iPhone is its lack of international roaming support...

...First, this phone will not work in Japan because it does not support the crucial international 3G band, known as 2100MHz WCDMA, or UMTS. Lack of 3G support also means less choices for roaming in Europe and other parts of Asia...





January 2006

Where Have You Been?

This is the first time I have bought *Digit*. And I must say that I am a fool not to have bought it earlier! I will be buying a computer later this month, but even without a computer, this magazine is a gold mine of information. Already, I know details of so many things that I had only heard of earlier. Your article about HDTV, air flow inside a computer cabinet, and the review of Flash drives were immensely useful.

Also very interesting was the article about Intel's prediction for the sales of its quad-core processors.

I congratulate your editing team for presenting purely technical matters in a language understandable by a layman like me.

A very useful feature of your articles and reviews is that prices of products are mentioned. This enables me to make informed decisions, and also bargain better when someone is trying to rip me off by quoting sky-high prices.

I read that with your December issue you have given a CD with soft copies of 23 issues of Digit. I want some information about the differences and advantages of dual-core processors vis-à-vis the newer Core 2 Duo processors. Will I find the information in that CD?

I don't have the December copy but I am currently trying to obtain one. I have already written to Agent001 for details about what kind of computer to buy and I am sure *Digit* will be my constant reference guide once I start using it.

I also read a letter from another subscriber bemoaning the profusion of advertisements in the magazine. I would like to say that the adverts are very useful since they provide information to people like me who are not aware about the various products available in the market.

Thanks for a wonderful magazine and keep up the good work!

Raj
Pune

Dear Raj,
It was nice to know that *Digit* enchanted you in its first attempt. We are glad to know that you do like our articles and the way we present them. Few people take the initiative to write a positive mail—and you're one among them. It is easy to criticise but difficult to take the effort to write appreciation—thanks to you to have done it! It does motivate us to hear congratulatory words from our readers—makes us feel our job and efforts are worth it.

The December 2006 CD, which had an archive of our past 23 issues and all our *Fast Track* issues, might not explicitly mention the merits and demerits of Core 2 Duo, but we have certainly reviewed Core 2 Duo and Core Duo in our November 2006 issue. Do read that particular article if you get hold of our December 2006 mag with its archive CD.

Thanks for your feedback—and do keep mailing, even if it is to criticise us, though we hope that we will never give you that opportunity!

— Executive Editor

The Vietnam Connection

A year ago I used to walk into a computer examination hall with shaking hands and an immobile body... and now it is one of those tests which I strive to perform at. And you know who deserves the pat on the back? Not me, nor my computer book, but the entire Team *Digit*. Your software usage tours, and Tips & Tricks have certainly taken me to greater heights.

Earlier, I used to see my film-editing partner (I'm learning film-making on Adobe Premier Pro 2.0) begging his senior for a copy of Digit... and I used to wonder, "Why?" Then I decided to take a sip of the magazine myself, and couldn't resist—I had to drink the whole glass! And what's more, I discovered the CD, DVD and *Fast Track* books...couldn't do anything other than request my parents to subscribe for me.

At first, they seemed unsure if they were doing the right thing, but then I showed them the magazine and told them about the contents... and guess what... they agreed (who wouldn't?).

I really liked your July issue, and grew curious about Google SketchUp. So, when my dad was going to India (while I was living in Vietnam), I asked him to get me the December Issue. And I found Google SketchUp in that!!! I immediately tried it, and attached to this mail is the picture of the house I've designed in that—please do comment!

I really wish to ask you to include some good editing software in your next CD or DVD, and please, please, please put in some new movies, 'cause I am actually allergic to oldies!

I really liked the new interface of the CD's this time—they're awesome!

One last thing—this is a true thing that happened with me... there are two shops, both sell software. One sells originals, one pirated. They are right opposite each other. The software I need costs Rs 45,000 (converted rate) at the original software showroom, and just Rs 45 at the pirated software shop. Both work perfectly, but the original has fancy packaging. Tell me—what should I do?

Once again, thank you.

Jaskunwar Kohli
Welham Boys' School
Dehradun

Dear Jaskunwar,
It's heartening to know that our issues being read all the way in Vietnam—I admire your passion and determination to overcome your fear of computers.

We have taken a note of all your requests, and will try and implement them soon.

Regarding the piracy issue—it's like taking a decision on whether to cheat or not. I can understand the heavy price of being honest, but what if one day you develop software, or create a brilliant architectural design that someone pirates and illegally sells for cheaper? How would you feel? I hope you get my point.

I know that certain software companies have inflated prices, but that's still no excuse for piracy. Perhaps you should look for an alternative, maybe an open source option.

As far as providing new movies on the DVD goes, we will, provided we get permission to do so. Generally, the only movies released are under Creative Commons licenses. Regarding new movies in our CD, well, it requires express permission from producers, which is difficult to come by—they want lots of money to share their collection. So we will have to make do with some old ones as of now.

— Executive Editor

Expensive?

Although I am not a subscriber of *Digit*, I have read almost all your issues. To be frank, I have only missed issues when I

Write to the Editor

E-mail: editor@thinkdigit.com

Snail Mail: The Editor, Digit, D-222/2, Om Sagar Building, MIDC, TTC Industrial Estate, Nerul Navi Mumbai 400 706

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Inbox

decide to buy another magazine such as *Chip* or *PC World*. However, past experiences have always left me disappointed, and I have to stick to *Digit*. The software content and the magazine, especially QnA, rock. I want to thank you guys for all the information you provide and hope you will keep it coming.

My biggest complaint, if any, is that you guys are more expensive than the other magazines, but *chalega*. Please try and provide some hardware and networking content as I'm studying that. Is there any way in which I can get the issues I've missed?

Hidayath Khan S
Mysore

Dear Hidayath,
Thanks for your mail and all the appreciation of *Digit*. Yes, *Digit* costs you more than the rest, but we pack in a lot more. Regarding previous *Fast Track* issues, if you bought our December 2006 issue, you will find that the Archive CD contains the past 23 issues (2 years) of *Digit* and all 21 issues of Fast track in PDF format.

So go grab that issue from a newsstand that might still have it, and keep mailing us your feedback and suggestions!

– Executive Editor

Whoops!

I am a regular reader of *Digit*. I want to report a mistake in your November 2006 *Fast Track To Open Source Software*, page 40 - 41, under *Formats, Codecs & Other Undecipherable Stuff*.

In The PAL section, you define "PAL—Phase Alteration Line, a format of video display used in India. This is made up of 600 lines refreshed at 25fps." PAL is actually 625 lines, 25fps, 50 Hz.

Santosh Kumar

December Was Bad

Guys, I'm a reader of *Digit* since your very first issue. I was really disappointed with your CD contents in the special issue of December. You guys say that most PC owners use Windows, but you gave two whole CDs on Linux. The DVD and CD were also not that great, but your interface is superb.

Sumit Uniyal
Jaipur

Dear Sumit,
Have you tried dyne:bolic? It's amazingly useful and a lot of fun for a lot of people. Though we have got hundreds of mails thanking us for it, we're sorry you didn't like it. Besides, it's not like you need to format your Windows installation to use it (or even Slax), because they are Live CDs.

The other CD you are mentioning contained our Digit Archive—23 past issues of *Digit* and all 21 past issues of the Fast Track series of books. We're also sorry that you did not like the rest of the content, and we hope you will keep writing to us and give us suggestions about what to include.

You can also log on to the Digit Forum at www.thinkdigit.com/forum, visit the "By Demand section" and *demand* all the software you want. We make every effort to fulfil all reasonable demands.

– Executive Editor

Wah, Wah

Hum aapki magazine se khafaa nahi ho sakte,
Vaada kiya hai ise kahirdne ka isliye bewafa nahi ho sakte.
Aap hume jaante hon ya nahi,
Hum aapki magazine ko padhe bina reh nahi sakte.

I am a student of class 10, and I love your magazine. I have started reading *Digit* from September 2006, and though I'm not a subscriber, I never miss an issue. All the stuff that you give away in your CD and DVD are very useful. All the tests (motherboards, graphics cards, etc.), Bazaar, game reviews, etc., are great.

I especially like the reviews of extraordinary stuff in Droolmaal. *Digit* keeps me updated through the latest technology, and has Digitized me. Are you giving fast track to Flash in the future? Once more, thanks for the coolest magazine I've ever read...

Puranjai Pratap Mall
Kanpur

It's been a year since I started buying *Digit*. I used to read *Chip* and then *Computers@home*, and now I'm stuck with *Digit*. I buy from the newsstand, but once I'm settled, I will be taking a three-year subscription. Before reading your *Fast Track to Google*, I had no idea that Google had so many services!

Radeesh
Chennai

Dear Puranjai and Radeesh,
We're glad to have made an impression. We hope you enjoy *Digit* for many more years.

– Executive Editor

Paranoia!

LETTER OF THE MONTH

I read through your editorial in January's issue, and I am also very uncomfortable with the current situation. The first time I saw the movie *Enemy of the state*, I was horrified. I knew that the technology featured in the movie was not all yet in existence, but the keyword remains yet.

Soon, corporate powerhouses, governments, etc., will be able to access and view every aspect of our lives, what we did, when, where, everything. Most of the technologies are available, only the networking of the databases remains—the example of Google's services is testament to this.

But let's get back to the moral / political issue here. Our personal lives are getting invaded, Orkut even could force us to fill out all of our profile details. My solution has been to lie blatantly at all signups. A little example—I am registered as "Krauser Veinel" of "Russia" at Yahoo! My Orkut profile does not have any personal detail except that I am in Delhi and like Eminem and NWA.

I downloaded (illegally, of course) the infamous "Cookbook". For those who do not know, it is a guide to making bombs, hijacking cars, looting banks, digital theft (what irony), etc. Does that make me a potential threat to national security? Legally, the answer is no! And I *am* a teenager who is attracted to violence and all such things, like most teenagers.

What then justifies the monitoring of a citizen by the state? I do not know. Downloading the "Cookbook" certainly does not. But nothing justifies Google or any other commercial entity to have knowledge of the whole of our lives, or even a small part of it

Our identity is the only thing we really have. Our job, wealth, friends are all linked to our identity. And as our digital identity becomes more and more important, the chances of it being misused or worse, stolen, increase.

But it's not just that. Hearing the words "they are watching you" is chilling, because it's true. Maybe that's why I never got a credit card, and told my dad to refrain from them, even though ICICI bank nearly tricked me into getting one.

I apologise for this extremely long letter, but I just had to write this. I would also like to remain anonymous.

A *Digit* Reader

Check your TQ

New Foxes And Terabytes

1 Mozilla has already started brainstorming for the next version of Firefox. What is Firefox 3 codenamed?

a) Gran Paradiso
b) Bon Echo
c) Deer Park
d) Phoenix



2 Which of the following products didn't launch at CES this year?

a) A robot kit that provides a platform to create a programmable robot
b) A briefcase with a solar charger for laptops
c) Linksys' iPhone
d) Creative MP3 Players

3 Name the much-vaunted European search engine on which the French and the Germans worked, but on which the countries split:

a) Scroogle
b) Theseus
c) Zeus
d) Quaero

4 Which term topped the list of the Top Ten Most Searched Terms on Google for 2006?

a) Britney Spears
b) Wikipedia
c) Bebo
d) MySpace

5 Which of the following is *not* a type of non-volatile memory?

a) Phase-change Random Access Memory (PRAM)
b) Magnetoresistive Random Access Memory (MRAM)
c) Static Random Access Memory (SRAM)
d) Nano Random Access Memory (NRAM)

6 Going by the statistics of the International Telecommunication Union, which country had the greatest broadband penetration as on January 1, 2006?

a) Brazil
b) United States
c) The Netherlands
d) Iceland

7 What does "PSTN" stand for?

a) Parallel Switched Telecommunication Node
b) Public Switched Telephone Network
c) Public Service Telecommunication Network
d) Packet Switched Transmission Node

8 Which of the following unveiled the world's first 1 TB desktop hard drive in January 2007?

a) Hitachi
b) Sony
c) Seagate
d) Samsung

9 Which of the following companies does *not* belong to the alliance that produces Cell processors?

a) Sony
b) Toshiba
c) IBM
d) AMD

10 Microsoft and Ford have unveiled a system to enable voice-activated music and telephone calls for car drivers, known as...

a) V.A.M.
b) Sync
c) Jumpstart
d) Lip Sync

Did You Know?

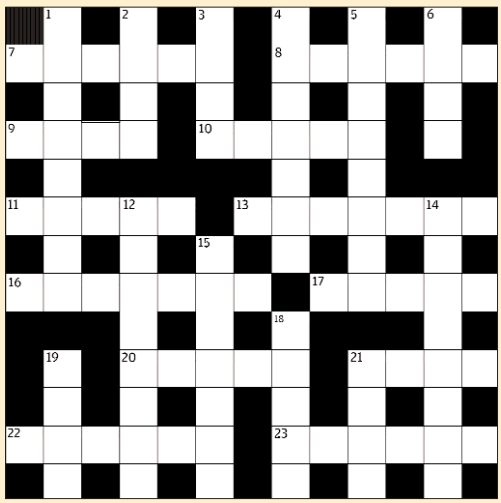
The name 'Flash' for Flash Memory was suggested by Mr. Shoji Ariizumi to Dr. Fujio Masouka, the inventor of Flash memory, because the transistors' ability to erase data in a split second reminded of camera flash.

Answers

1. a) Grand Paradiso
2. c) Linksys' iPhone
3. d) Quaero
4. c) Bebo
5. c) Static Random Access Memory (SRAM)
6. d) Iceland
7. c) Public Service Telecommunication Network
8. a) Hitachi
9. d) AMD
10. b) Sync

Got an interesting question? Send it in with the answer to **TQ@thinkdigit.com** Mark "TQ" in the subject area.

Crossword



ACROSS

7. B in BD disc- next generation optical disc format (3,3)
8. Basic core of OS X combining Mach kernel and Free BSD (6)
9. ___Code- computer's audio signal when you turn on the PC (4)
10. Non volatile Random Access Memory(abbr)(5)
11. Multi___combination of text, graphics and sound (5)
13.___Or gives values to variables in programming (7)
16. Widely used PC microprocessor from Intel Corp (7)
17. Bangalore based IT company originally known as Mastech Corporation (1,4)
20. Abort, ___ignore, fail- DOS error message (5)
21. ___or thin client- low cost computer devoid of CD-ROM, diskette drives (4)
22. Data flows in a___the way it is delivered (6)
23. Search___software used to search information on web sites (6)

DOWN

1. IBM's ___/L- fastest commercial computer today (4,4)
2. Cut away unwanted portions of a picture (4)
3. C in CMYK (4)
4. E-mail___is username at hostname dot com (6)
5. Cache___tricking computer into running Java code it would not run (8)
6. ___Fox- faster web browser than Mozilla (4)
12. Worldwide system of computer networks (8)
14. Child safety software on the net (3,5)
15. ___Error- error that occurs during the execution of a programme (7)
18. Units of storage measurement in a computer (5)
19. ___Way- link from one computer system to another (4)
21. Company emblem (4)

Crossword by **Nitta Jaggi**

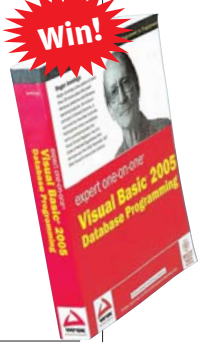
January 2007 Winner: ***Sandeep Kumar Srivastav, Dehradun.***

Send in your entries to **TQ@thinkdigit.com** on or by **20th of this month.** One lucky participant will win **Visual Basic 2005**

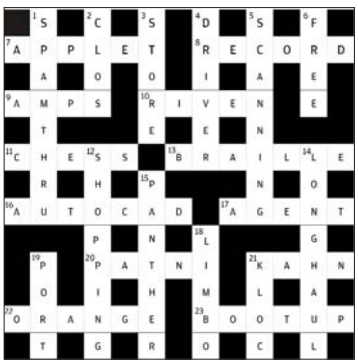
By Roger Jennings

Published by WILEY-INDIA

Win!



Last Month's Solution



Tabloid TECH

People And Events That Grabbed The Headlines—For Better Or For Worse

Cars, Cuties, And Cleavage

"Dashing, Debonair, Deadly, with Guns, Girls, Gadgets." That James Bond pitch was thought up a long time ago, and there's a fundamental flaw—some deviant wiring—in the male human brain that is responsible for associating girls with gadgets and guns.

We've made up our own line for the North Hall at the Consumer Electronics Show: "Cars, Cuties, and Cleavage." We haven't been there, but we hear that both cars and girls—every man's two favourite things—are featured in that Hall. Since we've already covered some Gadgets in this issue, we get to talk about the Girls here.

Sound familiar? It should if you're a regular reader: we talked about the 2006 Booth Babes last year, when the 2006 CES happened. Apparently, companies know what we geeks want, which is the latest gadgets on display along with cleavage... err... scantily clad babes... umm... pretty women? **http://www.thetechzone.com/?m=show&id=666**. Go there, decide for yourself whether it makes you happy or offends you. Samples provided below!

Some of the pictures leave little to imagination, with even the booth babes' faces being cut out, leaving just... well... This is an effort to conserve bandwidth we presume! See you at CES 08!



Oops, We Did It Again!

You can't believe we actually said that, can you? We did it because it's the last chance we'll have! See the very colourful screenshot below? That Britney-laden page is from worldofbritney.com. It's Britney's biggest Internet fan club.

So are we launching off again? Are you afraid that we're giving up on *all* those sincere promises we made?

No! We bring good news! This will be the last time (we really, really promise) we'll talk about Britney! **Worldofbritney.com** closed down on January 31! We took this screenshot as soon as we heard the good news!

The reason that's been cited for the site's closing is, according to Ruben Gray (who founded the site), that Britney "has been seen partying since filing for divorce from Kevin Federline," which has shocked fans on the site.

"Britney is losing her identity and credibility. Britney is done."

And done she is, as far as this page is concerned. We promise. Again. On our honour. We swear. We'll never do it again!



Bimbo Blogger Babes?

CES happens, and you get Booth Babes. That's natural and healthy (so we're told). But Blogger Babes?

At **http://snipurl.com/bbtit2**, we find "the utmost in feminine beauty in bloggerdom." The message is that even when they do something as intellectually demanding as serious blogging, they get labelled "Babes." But don't waste your sympathies: we're absolutely sure they didn't mind the extra attention and the free PR.

To try and see what the Babes were saying about their having gotten blogged for their looks, we visited Wendy Cheng's blog (**http:// xiaxue.blogspot.com**), and noticed it's pink. Very pink. There's a huge pink-themed picture of Wendy bang on top of all the posts. And here's a snippet from one of her posts:

"Mike is coming to Singapore again!!!! I am sooooo happy! It's great to have a boyfriend! Now I won't have to fret on Valentine's day coz he will be here!! :D"

Intellectually demanding? We stand corrected.

If you're wondering why Wendy is popular, just look to the right:

"Stop asking me why I am popular, and read these!"—followed by a link to "classic" posts.

Below that, "Links" are bulleted with little pink hearts. We'll cease serious commentary at this point. You go figure why they get labelled "Babes."

